DOCUMENT RESUME

ED 324 840 EC 232 184

AUTHOR	Harris, Carolyn DeMeyer; And Others
TITLE	An Interactive Videodisc Program To Evaluate and Train Job-Related Math Skills for Transition. Final Report.
INSTITUTION	Macro Systems, Inc., Silver Spring, Md.
SPONS AGENCY	Special Education Programs (ED/OSERS), Washington, DC.
PUB DATE	30 Nov 89
CONTRACT	G008730292
NOTE	663p.
PUB TYPE	Reports - Descriptive (141)
EDRS PRICE	MF03/PC27 Plus Postage.
DESCRIPTORS	Adolescents; Education Work Relationship; High Schools; Instructional Design; Instructional Materials; *Interactive Video; *Job Skills; *Material Development; *Mathematics Skills; *Mild Mental Retardation; Problem Solving; *Simulation; Skill Development; Transitional Programs; Vocational Education; Young Adults

ABSTRACT

The project designed and developed a videodisc package that provides both assessment and related instruction programs for job-related mathematics problem solving, using simulations to provide direct access to vocational situations. The materials are intended to meet the needs of youth and young adults with mild mental handicaps in transition from school to work. The project analyzed current student performance competencies related to the use of mathematics in both generic and specific vocational situations, designed and developed interactive videodisc materials called "Working with Math," and conducted a pilot test. Students were instructed, and student performance was assessed, in the following areas: measuring length, perimeter, area, capacity, weight, temperature, and time; money values and relationships; money earned; and money-related forms. The report's five sections consist of an introduction, descriptions of the design and development, pilot test and dissemination activities, and a list of 11 references. Appendices, which make up the bulk of the document, include: (1) a list of basic and job-related mathematics skills; (2) the scripts used in the assessment portion of the videodisc program; (3) the scripts used in the instruction portion of the videodisc program; and (4) a pilot test rating sheet. (JDD)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED324840

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)
☑ This document has been reproduced as received from the person or organization originating it.
☐ Minor changes have been made to improve reproduction quality.
• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy

FINAL REPORT

AN INTERACTIVE VIDEODISC PROGRAM TO EVALUATE AND TRAIN JOB-RELATED MATH SKILLS FOR TRANSITION

FOR
GRANT #G008730292

Submitted to:

U.S. Department of Education
Office of Special Education Programs

Carolyn DeMeyer Harris
Elaine Robey
Kathleen Wholey
Robert Pels

Macro Systems, Inc.

November 30, 1989

EC 232184

TABLE OF CONTENTS

Page

I. INTRODUCTION 1

II. DESIGN AND DEVELOPMENT OF MATERIALS 5

III. PILOT TEST 15

IV. DISSEMINATION ACTIVITIES 19

V. REFERENCES: 20

Tables

1 Sample Student Records for Assessment 12

2 Sample Student Records for Instruction 13

3 Pilot Test Subjects' Assessment Scores 16

Appendices

A. Reviewers A-1

B. Review Materials B-1

C. Assessment Working Scripts .... bound separately

D. Instructional Working Scripts .... bound separately

E. Pilot Test Observation and Rating Sheet E-1

I. INTRODUCTION

I. INTRODUCTION

The current emphasis on the transition of handicapped adolescents from school to the community has generated renewed interest in the specific skills related to the transition to work. The ability to apply functional mathematics is at the heart of many jobs, including those skills related to specific job performance and to personal needs associated with work. For example, it is important for employees to record hours worked, to comprehend how paychecks are computed, and to understand other specific math-related skills such as working with money and making change, understanding time and scheduling appointments, and measurement of all types. However, it also is true that the assessment of these functional math competencies in individuals with handicapping conditions has been extremely difficult due to the inability to distinguish between an individual's skill in real life situations and his or her ability to function in abstract or unrelated academic assessment situations.

Macro Systems, Inc. was awarded a grant under the Office of Special Education Programs priority, Improving Technology Software. In its proposal, Macro noted that current state of the art videodisc technology offered the potential for simulation experiences that allow both a much more concrete assessment of an individual's ability to cope with real life math situations and instructional activities that provide opportunities for remediation related directly to assessment results.

In attempting to assess the interests and abilities of students with handicaps as they move from school to work, the ability to integrate basic academic skills into this assessment is crucial to the success of the task. The literature shows that academic assessment instruments to measure math skills are typically included when a vocational assessment test battery is administered (Brolin & Kokaska, 1985). Almost all of these instruments use the typical paper and pencil technique, such as the Wide Range Achievement Test (Jastak & Jastak), the KeyMath Diagnostic Arithmetic Test (Connolly, Nachtman, & Pritchett), and the RRC Diagnostic Inventory (Regional Resource Center, University of Oregon). To date, there exists no standardized assessment instrument that provides an advanced application of simulation as the basis for assessing math skills. In fact, only a few instruments, such as the Detroit Test of Learning Aptitude (1984), the K-ABC Assist (1983), and CompuScore (1984), are even providing software to assist in scoring.

While there is increased interest in computerizing existing paper and pencil assessment instruments, a major problem exists -- the need to assess handicapped students' math skills in real life situations, particularly vocational settings. The history of special education literature is replete with references and studies indicating the difficulty that handicapped youth, particularly those with cognitive impairments, have in moving from the concrete to the abstract level of functioning and between dissimilar concrete level tasks (Mercer, 1982). In light of these difficulties, it is important that the assessment of job-related math skills be completed in settings as close as possible to the conditions under which the skills will be applied. While this leads to the logical conclusion that these skills should be assessed in the actual work place (i.e., situational assessment), there are a variety of reasons why this is not usually done, such as transportation problems, site or business restrictions, availability of sufficient support staff, and, in some cases, the level of appropriate behavior of the student or client.

In addition to the use of videodisc technology for assessment, the need for remedial instruction related to the same areas is evident. The focus of school-based vocational evaluation has been to assess both the current level of functioning and the ability to learn new and varied tasks.

The development of interactive videodisc programs to support evaluation and training needs has been growing rapidly in industry, the military, and other non-school applications (Ofiesh, 1987). Education has lagged far behind other areas of the training world, even when presented with evidence that this technology is effective and improves performance. Listening to comments from the industry, interactive videodisc sounds like the latest snake oil, the cure to end all training ills. Statements like "Training effectiveness is increased by 75 percent with interactive video, compared to 40 percent with videotape, and 15 percent with seminars and print materials"; or "We will guarantee that 90 percent of your people will perform better after training with interactive video," appear frequently in trade publications (Market Monitor, 1985). One expects such hyperbole from those who have products and services in the marketplace. However, when nearly identical claims are voiced by academic researchers — "We are consistently going into difficult instructional settings and adding about 20 percent to levels of mastery" (SchoolTechNews, 1986); "...groups averaged a 72.5 percent learning gain" (Carter, Browning, Nave, & White, 1985); "...offers...excellent learner productivity" (Gindele & Gindele, 1984) — one begins to consider them more seriously.

In the assessment of instruction for students with learning handicaps, it appears interactive video has much to offer (Becker & Schur, 1986). As a time and cost saving tool in the development of individualized education plans (IEP), one study found that computer assessment takes just two-thirds the time of print assessment. Another study reported that, after development costs were met, the traditional paper-based assessment cost 3.9 times more than the computer assessment (Becker & Schur, 1986).

Using interactive videodisc for presentation of real life simulations enhances the program's potential for assessing, instructing, and providing practice in appropriate job-related mathematics. With the computer carrying out the scoring, bias is avoided and error rate in computation is eliminated. The second audio track of the videodisc provides a particular advantage by reducing reading requirements for poor readers (Schuerholz, 1985), thus increasing the focus on mathematics skills. Use of attractive color graphics in conjunction with text and video help focus and hold attention (Techsplanations, 1989), and the touch screen interface further enhances user involvement and interaction during the program. This active participation breathes life into abstract concepts and allows a student to take part in the vignette; the lesson is more readily understood because it is "real" (Widerquist, Birdsell, Johnson, Crowell, & Miller, 1987). In addition, the student determines the pacing of the lesson. This control has been found to be critical for the instruction of students with learning problems, guarding their often shaky self-esteem and confidence (Gindele & Gindele, 1987). These affective factors have been found to influence the amount of time students stay on-task and the time period one will stay on any particular lesson. Exciting and intriguing, students enjoy the use of videodisc (SchoolTechNews, 1986).

There is every reason to believe that advances being made in the technologies comprising interactive videodisc will continue to expand the potential uses for such a widely applicable tool. Just as we have seen tremendous increases during the past five years in uses of microcomputer and videotape equipment and their related programs in schools, videodisc systems are beginning to grow in use for a broad range of training activities, including some limited use in special education. Following the lead of their industrial and military counterparts in using videodisc technology, as the cost of equipment continues to decrease, schools will be looking for well-designed and flexible courseware to get their systems up and running. Toward this end, the Office of Special Education Programs grant priority, "Improving Technology Software," supported this project, whose specific objectives included:

- To design and develop a videodisc package that provides both assessment and related instruction programs that make use of simulations to provide direct access to a series of vocational situations that focus on student abilities to problem solve and determine the correct answers to a number of job-related problems.

- To pursue commercial publication of the package to promote availability to the largest number of youth and young adults with handicaps.

II. DESIGN AND DEVELOPMENT OF MATERIALS

II. DESIGN AND DEVELOPMENT OF MATERIALS

The first year of the grant consisted of the analysis of current student performance competencies related to the use of mathematics in both generic and specific vocational situations, and the design and development of the assessment component of the interactive videodisc math program. The second year consisted of the design and development of the related instructional component of the interactive videodisc program, pilot testing, and the development of final documentation for use of the complete package entitled *Working with Math* .

Analysis

The project staff surveyed selected existing curricula and literature related to vocational competencies to identify math-related competencies including the following:

- *Access Skills: Vocational Readiness Skills Inventory for Special Needs Students* (Missouri LINC, 1987)
- *Computerized Vocational Objectives Manual and Data Bank for Students with Special Needs* (Missouri LINC, 1984)
- *Generalizable Mathematics Skills Assessment User Manual* (James Greenan for the Illinois State Board of Education, 1984)
- *Academic Competency Taught in Vocational Education (ACTIVE) Report* (Jean Sillers and Barbara Rupp for the state of Michigan, 1985)
- *Master Taxonomy List* (Les Snyder for the Vocational Technical Education Consortium of States, 1987)
- *Basic Competencies in Mathematics* (SREB-State Vocational Education Consortium, 1987)
- *Secondary School Mathematics for the Learning Disabled* (John F. Cawley, 1985)
- *Developmental Teaching of Mathematics for the Learning Disabled* (John F. Cawley, 1984)
- *Improving the Basic Skills and Job Awareness of Handicapped Students* (Final Report of the Ohio State University National Center for Research in Vocational Education for the Office of Special Education and Rehabilitative Services, 1985)

The greatest source of information came from the preliminary research for the Ohio State report. The purpose of that project was to develop and test 30 instructional booklets in arithmetic skills for the specific occupations that were considered appropriate for mainstreamed mentally retarded, learning disabled, and emotionally disturbed students. With few exceptions, the work-related mathematics skills found in the reviewed materials were also mentioned in the Ohio State work. In addition, the defined population for that project matched this project's target population. The decision was made to use the Ohio State list as the primary source in compiling our list of job-related math skills so the frequency with which various skills were required across all suitable occupation could be compared in a consistent manner. The list was then checked against the other sources of information to ensure completeness.

The review, particularly definitions of what constitutes basic mathematical skills and recommendations made by the National Council of Supervisors of Mathematics and the National Council of Teachers of Mathematics, also lead to a decision that computational skills apply across math competencies and are more appropriately assessed within the context of the identified competencies. Further, all identified skills fell within two major competency areas — measurement and money. With the identification of only two competency areas, it became advisable to design the survey instrument listing all component skills, and to ask reviewers to identify those skills most important to include in an assessment program. The final list contained 98 fundamental skills and application tasks.

The 12 reviewers, solicited from the membership of the Vocational Education and Work Adjustment Association (VEWAA) or the American Vocational Association (AVA), were knowledgeable in vocational rehabilitation mathematics assessment for special populations. [A list of reviewers is presented in Appendix A.] The survey instrument was mailed to the reviewers who rated the importance of the identified competencies for transition to work for youth who are handicapped. In addition, the reviewers were asked to comment on several issues such as: the number of digits for computational problems, the smallest fractional unit to include, the extent of coverage of decimals other than money, the metric system and Celsius temperature, an appropriate standard for passing the assessment, and inclusion of an on-screen calculator. [The materials sent to reviewers are contained in Appendix B.]

The following rules were applied to the returned surveys to aid in decisions about those skills that would be covered in the videodisc assessment and subsequent instructional program:

0 -3 Yes responses	not considered for inclusion
4 - 8 Yes responses	considered for inclusion, but must meet the following criteria: -- be directly and inseparably related to a skill that received a high rating, and was eventually included in the program; and -- be a skill which, in the project staff's opinion, is essential to success in the jobs in which the target population is most likely to be placed.
9 - 12 Yes responses	seriously considered for inclusion, but must meet the following criteria: -- be a skill which, in the project staff's opinion, can be effectively dealt with in the medium of interactive videodisc; -- be a skill that is not so fundamental that we must assume that any student taking the assessment already possesses this skill; and -- be a skill which, in the project staff's opinion, is essential to success in the jobs in which the target population is most likely to be placed.

Fifteen skills and tasks were eliminated as a result of low ratings; 51 fell in the middle group; and 32 received high ratings. Approximately 50 target skills remained after careful review of the 51 middle group skills and 32 serious considerations. The two math competency areas -- measurement and money -- were specified in the following nine skills:

- Measuring Length
- Measuring Perimeter and Area
- Measuring Capacity
- Measuring Weight
- Measuring Temperature
- Measuring Time
- Money Values and Relationships
- Money Earned
- Money-Related Forms

After a review of hardware it was decided that a single monitor and touch screen offered the most direct presentation and user interface for the target population. In addition, there was need for a computer with sufficient capacity to handle the large assessment and instructional programs that were anticipated. Further investigation indicated that at the secondary school level there was a growing trend toward use of IBM and compatible computers. Thus, the IBM-PC or compatible was seen as the best choice to meet the needs of this project. IBM Corporation generously loaned Macro a complete InfoWindow system including XT personal computer and Pioneer LaserDisc player. The TenCORE Authoring Language was selected as the most powerful and flexible software for programming the lessons.

Design

The overall objective of this project was twofold:

> To present problems to the student in as realistic manner as possible through the medium of interactive videodisc, thus allowing them to use both their school math skills and their everyday cognition; and
>
> To limit the assessment and related instruction to mathematical problems that are truly essential to the performance of those jobs in which the target population would realistically be placed.

Using a team approach, each project staff member assumed primary responsibility for two or three of the target skills, designated as lessons for design purposes. Each skill was analyzed for further divisions or segments in the design specifications. No further subdivisions were necessary. The design specifications for the assessment and instructional topics within the two competency areas included the following:

Lesson Title
Lesson Objective
Segment Subject (when this level of specificity was applicable)
Segment Objective (when this level of specificity was applicable)
Standard
Learning Guidelines (primary type of learning involved - based on Instructional Systems Design (ISD))
Setting (including appropriate job for the assessment component)
Subskills Involved
Overview of action and sample problems
Testing Strategy for the assessment component
Learning Strategy for the instructional component
Particular screen design considerations

For the assessment component, the list of likely jobs for the target population in the Ohio State research was used to identify four or five jobs in which all of the identified mathematical skills could be reasonably depicted in the simulations. Based on the subcontract with Video Software Associates, which provided five days of location shooting with nine actors, and securing four appropriate work sites, the following jobs, main characters, and gender and racial characteristics were established:

• Bulk Food Warehouse Worker	Betty Jean [B.J.]	female, black
Warehouse Supervisor	Jack Martin	male, white
• Construction Worker	Tom	male, white
Construction Supervisor	Al Richmond	male, black
• Cook's Helper	Emmanuel [Manny]	male, Hispanic
Head Cook	Helen Young	female, white
• Frame Store Clerk	Nikki	female, Asian
Customer	Mr. Colby	male, black
Customer	Ms. Houston	female, white

The instructional component used a single character, Mr. Barwood, a small restaurant owner, as a friendly, helpful "teacher." He was established as a boss who had helped many young workers figure out ways to accomplish the math needed in their jobs. In addition to the obvious skills related to weight, capacity, temperature, time, and money, since it was a small restaurant, it seemed plausible that the target skills of length and perimeter and area could be incorporated through a redecorating project and small repairs.

Based on the design specifications and character descriptions, scripts were written and then reviewed by each other team member and the production director for accuracy, clarity, realism, feasibility, and user interface until final shooting scripts were achieved. [Assessment Working Scripts are contained in Appendix C and Instructional Working Scripts are contained in Appendix D, each of which is bound separately.]

Development

The project staff used the shooting scripts to work with Video Software Associates during filming of *Working with Math* . The following four sites generously agreed to the assessment production with filming occurring over five days in April 1988:

Gallery Lafayette, an art and frame shop
Miller and Smith Homes, a newly constructed house
Trinity United Methodist Church, an industrial kitchen
U.S. Department of Agriculture, a warehouse

For the instructional production in May 1989, Trinity United Methodist Church agreed to three days of filming for a location fee. Giant Food, Inc., Maryland National Bank, and Long Fence Company provided some of the props for the assessment production.

Each production was followed by editing to a rough cut, which was reviewed by project staff and personnel from the Maryland Rehabilitation Center, narration and feedback recording, and final edit with Paint Box graphics to master tape. Videodisc mastering was done by 3M Corporation. The assessment videodisc is singled sided with approximately 29.5 minutes of motion and stills and 27 minutes of second audio. The instructional videodisc is double sided and contains approximately 8 minutes of motion and stills and 45 minutes of second audio per side.

The instructional videodisc was planned and budgeted as a single sided disc; however, the audio required to meet the needs of the target population necessitated the use of both sides. It was decided that all nine lessons should be filmed in order to provide for a complete package, and Video Software Associates agreed to produce two master tapes through a reduction in motion and still for a substantial increase in second audio. However the budget could accommodate programming for a single side only. The second side will be programmed when an agreement is reached with a commercial publisher.

The assessment component was designed as a closed structure with the order of tests predetermined and completion of a test required for scoring to be recorded. The first time a student enters the program, he or she is forced to see the introduction, which provides an overview of the program and how to work with the InfoWindow system. There is no formal feedback, and the student cannot back up or jump forward. All questions except multiple choice allow the student to change an answer until it is exactly what is desired. When an answer is entered, however, the program automatically branches to the next problem. Questions that are used to build subsequent problems ask students to confirm their answer before branching, but an incorrect response to one part of a series does not affect whether the student can obtain a correct response on another part. Help, consisting of how to use the program, how to answer the particular type of question on the screen, glossary, and summary of the lesson or test focus, is available whenever a question is on the screen.

The instructional component was designed as an open structure with the student having control over the sequence of lessons through use of a main lesson menu. The touch boxes beside each lesson title are designed with a color coding system to help the instructor and student monitor progress in the program. When first starting the instructional program all boxes are colored blue. If the instructional portion of a lesson is completed the box changes to yellow indicating that the student has tried the lesson but has not completed the quiz. After the lesson quiz is completed the box changes to green or red depending on whether or not it was passed at 75 percent accuracy.

The student also controls much of the movement within a lesson through the use of menus. A lesson must be completed for scoring to be recorded. As in the assessment component, the student is forced to see the introduction the first time he or she enters the program. Each lesson progresses from simpler to more complex subskills through presentation of an instructional segment followed by examples and then practice problems. Every student response receives voiced feedback with overlay text in one of the following forms:

One of four correct answer messages on any attempt.
One of four unanticipated incorrect answer messages with a prompt to try again if it is the first attempt and without if it is the second attempt.
One to four anticipated incorrect answer messages if it is the first or second attempt.
A third attempt incorrect answer message

A correct response on the first attempt results in feedback and automatic branching to the next problem or instructional segment. A correct response on the second or third attempt results in feedback and a menu display that asks the student to select either go on or quit. An incorrect response, anticipated or unanticipated, on the student's first attempt results in feedback and automatic replay of the instructional segment and repeat of the problem. An incorrect answer on the second attempt results in feedback and a menu display that asks the student to select whether to repeat the problem again, go on, or quit. An incorrect answer on the third attempt results in the special incorrect answer message, display of the correct answer, and then a menu display that asks the student to select whether to go on or quit. When the student goes through a lesson for a second or subsequent time, there is an added option to jump directly to the quiz from any question in the instructional component. Help, consisting of how to use the program, how to answer the particular type of question on the screen, glossary, and summary of the lesson focus, is available whenever a question is on the screen. Special Help is intended to explain a procedure in more detail than the main instruction or when an alternative learning strategy is provided to a problem.

Initial programming involved creating a "toolbox" of units that could be invoked from within any lesson to set up and display the appropriate screen characteristics, play video, play second audio, show a still, specify touch zones, overlay directions, show standard response displays for each question type, and branch to Help with return to same location. The toolbox also contained the set of globally defined variables to be used throughout the program. The instructional component additionally required tools for displaying feedback and menus.

The remainder of programming for both the assessment and instruction involved locally defined variables, screen designs, text and any graphics for each problem, answer judging code, and branching sequence for each lesson. For the instructional component it also included feedback messages and related audio, correct answer buffers, and attempt structures.

The record keeping structure provides a menu-driven program for instructors to use to specify the hardware configuration, create class rosters, register students, create a password protected file, delete classes or students, and run the assessment or instructional programs. A full record is kept on each learner who uses the program. Scores are given in each of the 9 lessons and, in the assessment component, for 9 additional cross-test skill categories. Records can be viewed on the screen or printed, if a printer is attached to the computer. Tables 1 and 2 show the student records for the assessment and instructional components. [Complete details are contained in the *Working with Math User Documentation* included with the videodisc and software package.]

Table 1
Working with Math Student Record for Assessment Component

Jones, CB	1.	Measuring Length	–/21	0%
	2.	Measuring Perimeter and Area	–/9	0%
	3.	Measuring Capacity	–/26	0%
	4.	Measuring Weight	–/11	0%
Tests	5.	Measuring Temperature	–/8	0%
	6.	Measuring Time	–/10	0%
	7.	Money Values (and Relationships)	–/15	0%
	8.	Money Earned	–/10	0%
	9.	Money-Related Forms	–/16	0%
		Total	0/126	0%
	1.	Reading, Writing, and Comparing Numbers	0/5	0%
Subscores	2.	Computation with Whole Numbers	0/5	0%
	3.	Computation with Money Decimals	0/5	0%
	4.	Selecting Appropriate Measuring Instrument	0/9	0%
	5.	Reading Measuring Instruments	0/14	0%
	6.	Selecting Correct Computational Procedure	0/11	0%
	7.	Conversions and Equivalencies	0/18	0%
	8.	Metric and Celsius Measurement	0/9	0%
	9.	Problem Solving	0/36	0%

Table 2
Working with Math Student Record for Instructional Component

		INSTRUCTION		QUIZ				
		TIC	PASS	#Q	TQC	ATTEMPT 1	ATTEMPT 2	ATTEMPT 3
1.	Length	0	–	8	0	–	–	–
2.	Perimeter/Area	0	–	16	0	–	–	–
3.	Capacity	0	–	12	0	–	–	–
4.	Weight	0	–	10	0	–	–	–
5.	Temperature	0	–	11	0	–	–	–
6.	Time	0	–	8	0	–	–	–
7.	Money Values	0	–	13	0	–	–	–
8.	Money Earned	0	–	10	0	–	–	–
9.	Money Forms	0	–	12	0	–	–	–

TIC = Times Instruction Completed
PASS = Instruction Passed
#Q = Number of Questions in Quiz
TQC = Times Quiz Completed

The project staff conducted an in-house review to ensure bug-free operation of the interactive program. Two research assistants at Macro worked through the program and noted any problems with the accuracy or clarity of the program. All needed modifications were made and final programming was completed. The *Working with Math* package consists of:

1 single-sided math skills assessment videodisc
1 double-sided math skills instructional videodisc
seven 5 1/4 inch floppy diskettes
two 3 1/2 inch floppy diskettes [to be available when published]
User Documentation describing features and operation of the program.

For either the assessment or instructional component, each student must be provided with paper and pencils or a calculator. All student interaction is done via the touch interface. At no time does the student use the keyboard. All set up procedures for the InfoWindow work station and record keeping functions are to be done by the instructor. An overview of how each component operates follows.

The total time needed to complete the assessment varies from one student to another, but the entire assessment generally will take about 2 hours. At the end of any test, however, a student can select the option to quit. The student's score for that test is stored, and, when the student starts again, the assessment begins with the next test in the sequence. The tests are of various lengths, depending on the complexity of the skills related to the particular topic. An idea of the relative length of the tests can be obtained from the number of questions in each:

Measuring Length	21
Measuring Perimeter and Area	9
Measuring Capacity	26
Measuring Weight	11
Measuring Temperature	8
Measuring Time	10
Money Values and Relationships	15
Money Earned	10
Money-Related Forms	16

If a student quits in the middle of a test no score on that test will be recorded. Instructors can press **shift-F1** to interrupt the test and return to the record keeping system, but are encouraged to avoid doing this as it adversely affects the validity of the test results. The student will go through the tests in the order in which they are listed above. Once a students has completed a test, his or her record will show the number correct and percent scored on it. However, to obtain accurate information in the cross-test skill categories, the student must complete all tests.

The total time needed to complete all lessons in the instructional program will also vary from one student to another. However, during and at the end of each lesson, a student can select the option to "Quit and Go to the Menu."

The number of questions in the instructional lessons varies considerably depending on the complexity of the skills related to the particular topic. An idea of the relative length of the instructional segments can be obtained from the number of questions the student answers in each of the lessons during the instruction:

-- Measuring Length	*
-- Measuring Perimeter and Area	6
-- Measuring Capacity	32
-- Measuring Weight	15
-- Measuring Temperature	*
-- Measuring Time	15
-- Money Values and Relationships	*
-- Money Earned	*
-- Money-Related Forms	*

* Indicates lessons on second side of instructional disc, which are not yet available.

If a student quits in the middle of an instructional segment or quiz, no record will be kept for that segment. Pressing **shift-F1** returns the user to the lesson menu and pressing **shift-F1** again returns the user to the record keeping system.

III. PILOT TEST

III. PILOT TEST

Project staff developed an observation/evaluation form, which was completed for each student who used *Working with Math* . The form provided a place for recording demographic information and observations regarding behaviors, interactions with the system, interruptions, disruptions, student comments, nature of requests for assistance, etc. After each session, the student was engaged in a brief conversation about the program and subjective ratings were made about the student's attitude toward the program, ability to successfully interact with the system, suitability of the content, and atmosphere of the session. [The Pilot Test Observation and Rating Sheet is contained in Appendix E.]

Due to the expense of the InfoWindow system and its limited availability at locations in the Washington, D.C. area, arrangements were made with the Rock Creek Foundation, Inc. (RCF) to bring students fitting the target population description to Macro's offices for pilot testing during the summer and fall of 1989.

The four subjects were all males, three white and one black, ranging in age from 21 to 49. Two were categorized as low average ability, and two were categorized as mildly mentally retarded. Other disabilities were depression, mixed developmental disorder, and dependent personality disorder. All subjects were working in limited employment areas supported by RCF.

All subjects used paper and pencil during the program, rather than calculators, at the request of RCF. Two subjects completed the assessment in one time block, and two completed it in two sessions approximately one week apart. Completion times for the assessment ranged from one hour and 26 minutes to two hours and 9 minutes. Total correct ranged from 21 to 75 percent. The one session subjects were younger, took 1 hour, 26 minutes and 1 hour, 41 minutes to complete, and scored 40 and 21 percent. The two session subjects were older, took 1 hour, 45 minutes and 2 hours, 9 minutes to complete, and scored 74 and 75 percent. Table 3 shows the main test scores and subscores for each subject.

Table 3
Working with Math Pilot Test Subjects' Assessment Scores

MAIN TEST SCORES	Subject 1	Subject 2	Subject 3	Subject 4
Measuring Length	95 %	67 %	57 %	43 %
Measuring Perimeter and Area	56%	56 %	44 %	0 %
Measuring Capacity	69 %	73 %	42 %	19 %
Measuring Weight	82 %	82 %	18 %	18 %
Measuring Temperature	50 %	88 %	12 %	38 %
Measuring Time	80 %	90 %	30 %	10 %
Money Values and Relationships	100 %	100 %	53 %	27 %
Money Earned	70 %	60 %	40 %	10 %
Money-Related Forms	44 %	62 %	31 %	12 %
SUBSCORES				
Reading, writing, & comparing numbers	100 %	100 %	80 %	40 %
Computation with whole numbers	100%	100 %	60 %	0 %
Computation with money decimals	80 %	80 %	20 %	0 %
Selecting appropriate measuring instrument	100 %	78 %	89 %	44 %
Reading measuring instruments	71 %	86 %	36 %	29 %
Selecting correct computational procedure	36 %	55 %	55 %	18 %
Conversions & equivalencies	78 %	72 %	6 %	17 %
Metric & Celsius measurement	44 %	56 %	11 %	44 %
Problem solving	78 %	78 %	22 %	11 %

Following are descriptive accounts of the subjects' interactions with and reactions to the program.

Subject 1: Said he really enjoyed the math program and liked using the touch screen. He said he would like to use a program like this again, but he was not sure that IVD/computer testing was a better way to be tested over conventional methods. He was studying for the GED and mentioned it frequently as a comparison test. He was reluctant to use the paper and pencil at first until the observer reminded him that it was fine to do so. He talked aloud during most of the program as if thinking through the problems, what was being asked for, and how to solve them. He is right-handed and showed no apparent difficulties in responding to any type of question format. His favorite lessons were linear measurement, time, and money values. He felt unsure about metric measurement and Celsius temperature and said he didn't have to know them for the GED. He asked for assistance six times: he wanted to enter a decimal on the number bar; he found the recipe conversion very difficult; he wanted to enter a fraction on the number bar; and he wanted to confirm method of entry on the clock radio.

Subject 2: Said he really enjoyed the math program and liked using the touch screen. He said he would like to use a program like this again, and he thought that IVD/computer testing would be a good way to be tested -- better than conventional methods. He talked aloud during most of the program as if thinking through the problems, what was being asked for, and how to solve them. He is left-handed and showed no apparent difficulties in responding to any type of question format. He touched the screen very hard, and the monitor kept inching toward the right. As this happened, he began to have more trouble entering the numbers he wanted on the number bar. The observer straightened the monitor and everything worked fine. He thought money values was very easy. He asked for assistance five times: he didn't understand the confirmation questions; he wanted to enter fractions on the number bar in capacity and weight; he wanted to know how to erase an answer; and he wasn't sure how to enter numbers on the clock radio. Once he asked for help, but before the observer could say anything, he turned back to the screen, touched HELP, and said, "Oh, I can hear it again." When finished, he said, "This intrigues me. I like this test with the TV and all."

Subject 3: Said he really enjoyed the math program and liked using the touch screen. He said he would like to use a program like this again, but he was not sure that IVD/computer testing was a better way to be tested over conventional methods. He repeatedly said he didn't like or know much about measuring, but felt he was pretty good at computation. He worked rapidly and seemed to concentrate quite well. He seemed to become more interested as the tests progressed. He did not "think aloud" during the program. He is right-handed and showed no apparent difficulties in responding to any type of question format. He liked to use the pencil eraser for entering answers. His favorite lesson was time. He asked for assistance two times: he had difficulty touching the blue dots on one of the two high resolution screens, and he became confused when he went out for HELP and touched ANSWERS -- he thought the program had begun again.

Subject 4: Said he was nervous and had never done this before. He said he enjoyed the math program, liked using the touch screen,and would like to use a program like this again. He did not "think aloud" during the program. He paid close attention throughout the program, and didn't even want to take a break. He said people have to be smart to know the metric stuff. He said he was trying to do his best and get everything right, but he knew he was making mistakes. Six times he said, "This is fun." He is right-handed and showed no apparent difficulties in responding to any type of question format. His favorite lesson was linear measurement, and he liked the character of Manny. He asked for assistance seven times: he had difficulty entering a response on the confirmations; wanted to know how to work with the number bar. He said he knew he wasn't getting too many correct, but he knew he was doing better than he would on a paper and pencil test.

The instructional component was pilot tested only in-house by several staff members and teenage children of staff. Several confusing screens and problem operation code were corrected. Since the design automatically recycles on a first attempt incorrect answer and because there are many paths a student can take, it is difficult to provide exact times needed to complete the instructional lessons. However, the times taken to complete the shortest lesson, six practice questions at 20 minutes, and the longest lesson, 36 practice questions at 1 hour and 15 minutes provide a reasonable estimate of the range of time needed for the instructional lessons. The quiz for each lesson operates in a closed structure just like the assessment program, so times are more predictable. The shortest quiz of eight questions took approximately 10 minutes to complete, and the longest quiz with 16 questions took about 20 minutes. RCF has indicated that the four subjects will return to pilot test the instructional component in December 1989, at which time more information will be collected.

IV. DISSEMINATION ACTIVITIES

IV. DISSEMINATION ACTIVITIES

Project staff developed a brochure, "Interactive Videodisc Program to Evaluate and Train Job-Related Math Skills for Transition," which provided essential information about the project. Throughout the project this brochure was distributed to organizations contacted for the review and pilot testing activities; at appropriate conferences and meetings that were attended, including CEC and the Project Director's Meeting in Washington, D.C.; and, upon request from individuals, schools, and rehabilitation centers.

Project staff made a presentation about the analysis, design, and development phases of the project at the 1988 Closing The Gap Annual Conference. The paper submitted for the presentation was published in *Closing The Gap* (Harris, Robey, & Wholey, 1989). Also at that conference, at the invitation of IBM, the staff demonstrated the *Working with Math* program throughout the exhibit hall hours.

Throughout the project, the staff demonstrated the *Working with Math* program to visitors to Macro and upon request to individuals and groups, including personnel from several school districts, CEC, Job Corps, and Ferranti Educational Systems, and a university class. The staff also demonstrated the program in the IBM booth at the International Very Special Arts Festival at the Kennedy Center in Washington, D.C.

Macro anticipates that *Working with Math* will be published commercially within the next year. Currently, American Guidance Service (AGS), which has the right of first refusal, is reviewing the program in consideration of publication. However, several other publishers are interested in *Working with Math* and have requested review copies should AGS decline publication.

V. REFERENCES

V. REFERENCES

Becker, H., & Schur, S. (1986). The advantages of using microcomputer-based assessment with moderately and severely handicapped individuals. *Journal of Special Education Technology* , *8* (2).

Brolin, D.E., & Kokaska, C. (1985). *Career education for exceptional individuals.* Columbus, OH: Charles E. Merrill.

Carter, J., Browning, P., Nave, G., & White, W.A.T. (1985). Interactive video as a learning medium for mentally handicapped adolescents. *Journal of Special Education, 7* (1).

Gindele, J.F., & Gindele, J.G. (1984). Interactive videodisc technology and its implications for education. *T.H.E. Journal* , *12* (1).

Harris, C.D., Robey, E.P, & Wholey, K. (1989). Assessing and training job-related math skills via an interactive videodisc program. *Closing The Gap, 7* (6), 14.

Market Monitor . (December, 1985). International Communications Industry Association.

Ofiesh, G.D. (1987). DVI: Giant step for CD-ROM. *Instruction Delivery Systems, 1* (3).

SchoolTechNews . (1986). Educational News Service. *4* (2).

Schuerholz, L.J. (1985). The use of technology and media in the assessment of exceptional children. *Diagnostique, 10* (1-4 Monograph).

Staff. (1989). Videos: The brochures of the future. *Techsplanations, 1* (1), 1.

Widerquist, K.L., Birdsell, Johnson, J.F., Crowell, C.R., & Miller, A.E. (1987). Course design for training secondary teachers to develop interactive videodisc courseware. *T.H.E. Journal, 14* (6).

APPENDIX A
Reviewers

REVIEWERS

AMERICAN VOCATIONAL ASSOCIATION

Sheila Feichtner
Vice President, AVA - Special Needs Division
FMW Associates

James Greenan
Purdue University

Gary Greene
California State University

Michael Spewock
Center for Vocational Personnel Preparation
Indiana University of Pennsylvania

VOCATIONAL EDUCATION AND WORK ADJUSTMENT ASSOCIATION (VEWAA) MID-ATLANTIC REGION

Joseph M. Ashley
Coordinator
Project PERT, Woodrow Wilson Rehabilitation Center

Karen Pell Ayella
Assessment Specialist
OTC-CCC

Lynn Rothacker Dowd
Evaluation Team Coordinator
Centers for the Handicapped, Evaluation Department

Jim Lightner
Evaluator
Maryland Rehabilitation Center

Rose B. Mestrow
Supervisor - Counseling Unit
Hiram G. Andrews Center

Nancy Scott
Coordinator of Vocational Services
Peninsula Area Cooperative Educational Services (PACES)

Frances G. Smith
President, Mid-Atlantic Region VEWAA
Evaluator
Mt. Vernon Assessment Center

Bruce Stroh
Evaluator
Mt. Vernon Assessment Center

APPENDIX B
Review Materials

7 December 1987

Dear :

Thank you for agreeing to review the proposed math competencies for Macro's grant to develop an interactive videodisc program for selected vocationally related math competencies.

The product that will result from this project is a videodisc package that provides direct student access to a series of vocational situations. One videodisc will assess abilities to problem solve and determine the correct mathematical answer to a number of specific problems that are likely to occur in a work setting. Another videodisc will present related instruction with review, help, and practice in the target competencies. The materials are intended to meet the needs of youth and young adults with mild mental handicaps in transition from school to work.

Enclosed you will find two lists of mathematical skills. The first list consists of what are commonly referred to as basic skills. We have labeled them **Computational and Other Fundamental Skills**. They are skills that are used across many occupations as well as in aspects of individual living outside of work. The second list contains skills that involve the use of mathematics in applications that are specific to some subset of the occupations we reviewed. We refer to these as **Job-Related Math Application Tasks**. In general, these tasks use the computational skills for job-specific purposes, often involving combinations of those skills.

The lists are based on a review of several documents in the field of mathematics and vocational education from which we constructed a database to determine frequencies of skills across jobs. For our purposes, the most useful was *Improving the Basic Skills and Job Awareness of Handicapped Students*, a 1985 final report of a project conducted by the Ohio State University National Center for Research in Vocational Education for the Office of Special Education and Rehabilitation Services. The following materials also were reviewed:

- *Access Skills: Vocational Readiness Skills Inventory for Special Needs Students* (Missouri LINC, 1987)
- *Computerized Vocational Objectives Manual and Data Bank for Students with Special Needs* (Missouri LINC, 1984)
- *Generalizable Mathematics Skills Assessment User Manual* (James Greenan for the Illinois State Board of Education, 1984)
- *Academic Competency Taught in Vocational Education (ACTIVE) Report* (Jean Sillers and Barbara Rupp for the state of Michigan, 1985)
- *Master Taxonomy List* (Les Snyder for the Vocational Technical Education Consortium of States, 1987)

- *Basic Competencies in Mathematics* (SREB-State Vocational Education Consortium, 1987)
- *Secondary School Mathematics for the Learning Disabled* (John F. Cawley, 1985)
- *Developmental Teaching of Mathematics for the Learning Disabled* (John F. Cawley, 1984)

At this point we need your assistance in refining the lists to determine the competencies that will make up the assessment/instructional program. The selected competencies will be presented in realistic vocational situations. The assessment program will use specific probes in a problem solving approach to determine a student's existing skill level in each. The instructional program, which will use the same presentation and approach, will be available for any competency that is not passed at the established standard.

We have designed the rating sheets for the lists of competencies for a yes/no response as to inclusion of each skill or task. Please keep the following in mind as you make your ratings:

1. A *Yes* should be unqualified. We will count it as a definite response to include.
2. Any skill or task for which you have qualifications should be checked as a *No*. Then, please check a reason. If one of the three reasons provided does not adequately represent your view, check other. You are encouraged to add notes about your responses; just precede your remarks with the appropriate item number.

Following the rating sheets are questions to which we would like your opinions. Please respond to as many as you can.

We would like to receive your ratings and comments by December 23, 1987. A return envelope is enclosed.

Again, we are most appreciative of your effort on behalf of this project.

Sincerely,

Carolyn DeMeyer Harris
Project Director

Enclosures

REVIEWER RATINGS OF PROPOSED MATH COMPETENCIES

DIRECTIONS: Read each computational skill and decide if you would or would not include it in an interactive videodisc assessment and instructional program in job-related math skills for mildly mentally handicapped youth in transition from school to work. Check (✓) under the column YES or NO. If you answer NO, please check a reason.

			IF NO, WHY?			
COMPUTATIONAL AND OTHER FUNDAMENTAL SKILLS	**YES**	**NO**	**TOO FEW TARGET JOBS REQUIRE**	**INAPPROPRIATE FOR AUDIENCE**	**INAPPROPRIATE FOR MEDIUM**	**OTHER**
1. Read Whole Numbers						
2. Write Whole Numbers						
3. Compare Whole Numbers						
4. Add Whole Numbers						
5. Subtract Whole Numbers						
6. Multiply Whole Numbers						
7. Divide Whole Numbers						
8. Read Decimals						
9. Write Decimals						
10. Compare Decimals						
11. Add Decimals						
12. Subtract Decimals						
13. Multiply Decimals						
14. Divide Decimals						
15. Read Fractions						
16. Write Fractions						
17. Compare Fractions						
18. Add Fractions						
19. Subtract Fractions						
20. Multiply Fractions						
21. Divide Fractions						
22. Use Proportion						
23. Use Ratio						
24. Calculate with Signed Numbers						
25. Use Formulas						
26. Solve Algebra						
27. Read Charts and Tables						
28. Read Graphs						
29. Estimate Before Calculating to Determine Reasonableness of Result						
30. Round Whole Numbers						
31. Round Rational Numbers (containing fraction or decimal)						
32. Count Items						
33. Count by Multiples						
34. Understand Basic Geometric Concepts						
35. Understand Geometric Properties of Basic Shapes						

ADDITIONAL COMMENTS ______________________________

____

____

REVISED RATINGS OF PROPOSED MATH COMPETENCIES

DIRECTIONS: Read each math application task and decide if you would or would not include it in an interactive videodisc assessment and instructional program in job-related math skills for mildly mentally handicapped youth in transition from school to work. Check (✓) under the column YES or NO. If you answer NO, please check a reason.

			IF NO, WHY?			
JOB-RELATED MATH APPLICATION TASKS	YES	NO	TOO FEW TARGET JOBS REQUIRE	INAPPROPRIATE FOR AUDIENCE	INAPPROPRIATE FOR MEDIUM	OTHER
MEASUREMENT						
1. Estimate Length						
2. Measure Length						
3. Estimate Distance						
4. Measure Distance						
5. Estimate Perimeter						
6. Calculate Perimeter						
7. Estimate Area						
8. Calculate Area						
9. Estimate Volume						
10. Calculate Volume						
11. Measure Diameter						
12. Measure Angles						
13. Add Angles						
14. Subtract Angles						
15. Multiply Angles						
16. Divide Angles						
17. Estimate Capacity						
18. Measure Capacity						
19. Estimate Weight						
20. Measure Weight						
21. Estimate Temperature						
22. Measure Temperature						
23. Regulate Temperature						
24. Estimate Time						
25. Measure Time						
26. Use Measuring Instruments						
27. Compare Precision (measurements)						
28. Determine Precision (measurements)						
29. Measure with Units Used in Only a Few Occupations (Board feet, roofing squares)						
30. Alter Scale of Something (up/down)						
31. Estimate Materials Needed for Job Completion						
32. Calculate Materials Needed so that Waste is Minimized						
33. Estimate Cost of Materials Needed for Job Completion						
34. Use Recipes (and other directions requiring measurement)						

ADDITIONAL COMMENTS ______________________________

REVIEWER RATINGS OF PROPOSED MATH COMPETENCIES

DIRECTIONS: Read each math application task and decide if you would or would not include it in an interactive videodisc assessment and instructional program in job-related math skills for mildly mentally handicapped youth in transition from school to work. Check (✓) under the column YES or NO. If you answer NO, please check a reason.

			IF NO, WHY?			
JOB-RELATED MATH APPLICATION TASKS	**YES**	**NO**	**TOO FEW TARGET JOBS REQUIRE**	**INAPPROPRIATE FOR AUDIENCE**	**INAPPROPRIATE FOR MEDIUM**	**OTHER**
GENERAL						
35. Read Blueprints						
36. Read Scale Drawings						
37. Read Maps						
38. Verify Accuracy of Figures and Other Data						
39. Compile Data						
40. Record Data						
41. Summarize Data						
42. Maintain Records						
43. Use Calculator						
MONEY						
44. Use Cash Register						
45. Count Money						
46. Make Change						
47. Cash Checks						
48. Process Credit Card Purchases						
49. Compute Balance Due						
50. Compute Credit on Account						
51. Compute Percentage						
52. Compute Profits						
53. Compute Interest						
54. Compute Wages						
55. Prepare Deposit Slips, Receipts, and Vouchers						
56. Prepare Invoices and Statements						
57. Prepare Payroll						
58. Record Service Charges						
59. Accept Payment						
60. Record Payment						
61. Price Merchandise						
62. Determine Shipping Charges						
63. Place Orders						

ADDITIONAL COMMENTS ____________________

REVIEWER OPINION QUESTIONS - JOB-RELATED MATH SKILLS PROGRAM

DIRECTIONS: Please respond to as many of the following questions as possible.

1. What standard would you recommend as the percentage for passing each assessment section?

________ %

2. Would you provide a calculator for use:

a. throughout the assessment program? YES NO QUALIFIED
b. throughout the instructional program? YES NO QUALIFIED

QUALIFICATIONS: ____________________

2A. If YES to one or both -- Would you prefer:

___ a. an on-screen calculator that always would be available.
___ b. a hand-held calculator provided by the instructor when desired.

3. The general consensus on treatment of traditional and metric measurements is that they should be presented separately. Conversion should not be emphasized. Linking should be minimal and address only broad concepts of equivalents, e.g., a meter is about the same length as a yard.

If you have additional information to aid our design of this section, please comment.

____

4. The ability to estimate the reasonableness of an answer is important and one that should be emphasized throughout mathematics problem solving. Our preliminary design for both assessment and instruction incorporates estimation into each problem in the following way:

- Presentation of a job-related math problem
- Student Input #1: Which operation would you use? [multiple choice]
- Student Input #2: Estimate your answer. [numeric keypad entry]
- Student Input #3: Compute the actual answer. [numeric keypad entry]

Thus, there will be three scores for each student. Item feedback will be provided only in the instructional program. There will be a separate instructional module on estimation to be used at the option of the instructor.

Our concern is that many estimation strategies require rather complex concepts that we feel are beyond the scope of this project. Therefore, we think a satisfactory approach is to present only the basic rule-based rounding strategy.

If you have additional information to guide our decision on this, please comment.

____

5. For each of the following we have estimated an appropriate range given the target audience. If you have additional information to guide our decision on these, please comment.

OPERATIONS: maximum number of digits without calculator		TRADITIONAL SYSTEM: smallest - largest unit	METRIC SYSTEM: smallest - largest unit
Addition	3-digit addends		
Subtraction	3-digit minuend & subtrahend	ounce to gallon	gram to kilogram
Multiplication	3-digit multiplicand; 2-digit multiplier	1/16 of an inch to mile	centimeter to kilometer
Division	3-digit dividend; 2-digit divisor	ounce to ton	milliliter to liter

____

6. In dealing with temperature, should both Fahrenheit and Celsius be presented. YES NO
If NO, which one should be included? ____________________

APPENDIX C
Assessment Working Scripts

TO
FINAL REPORT
AN INTERACTIVE VIDEODISC PROGRAM TO EVALUATE AND TRAIN JOB-RELATED MATH SKILLS FOR TRANSITION

FOR
GRANT #G008730292

Submitted to:

U.S. Department of Education
Office of Special Education Programs

Carolyn DeMeyer Harris
Elaine Robey
Kathleen Wholey
Robert Pels

Macro Systems, Inc.

November 30, 1989

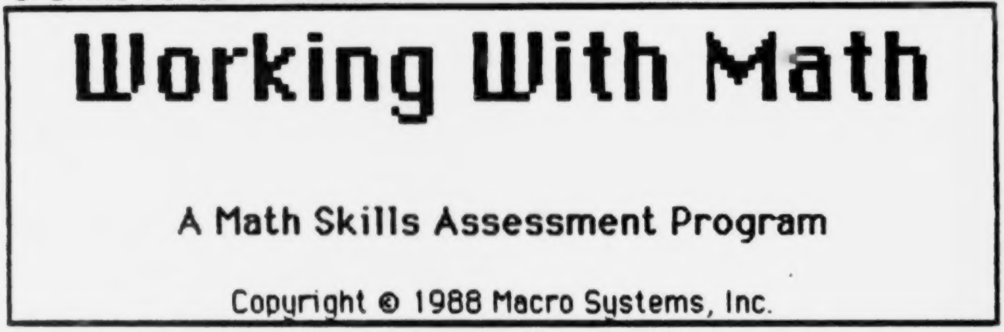
APPENDIX C CONTENTS

Assessment Working Scripts

1. INTRODUCTION
2. MEASURING LENGTH [LM]
    - Determining How Much You Have (Traditional)
    - Measuring Out a Specific Quantity (Traditional)
    - Using Common Metric Linear Measurements
3. MEASURING PERIMETER AND AREA [GM]
    - Finding Perimeter and Area of Rectangles
    - Finding Perimeter of Polygons Other Than Rectangles
4. MEASURING CAPACITY [CM]
    - Determining How Much You Have (Traditional)
    - Measuring Out a Specific Quantity (Traditional)
    - Using and Modifying Recipes and Other Directions
    - Using a Common Metric Capacity Measurement
5. MEASURING WEIGHT [WM]
    - Determining How Much You Have (Traditional)
    - Measuring Out a Specific Quantity (Traditional)
    - Using a Common Metric Weight Measurement
6. MEASURING TEMPERATURE [PM]
    - Using the Fahrenheit Scale
    - Using Common Celsius Scale Measurements
7. MEASURING TIME [TM]
    - Telling Time
    - Scheduling Time
    - Determining Elapsed Time
8. MONEY VALUES AND RELATIONSHIPS [MV]
    - Reading Money Values
    - Counting Money
    - Knowing Money Equivalencies
    - Making Change
9. MONEY EARNED [ME]
    - Computing Wages
    - Calculating Overtime Pay
    - Computing Tips
    - Determining Gross Earnings
    - Computing Net Pay
10. MONEY-RELATED FORMS [MF]
    - Completing Order Forms
    - Using a Tax Chart, Shipping Chart, and Sales Tax Chart
    - Recording Payment and Computing Balance Due
    - Preparing a Deposit Slip

Introduction

OPENING SCREEN: no audio



Working With Math

A Math Skills Assessment Program

Copyright © 1988 Macro Systems, Inc.

NARRATOR: 1ST AUDIO

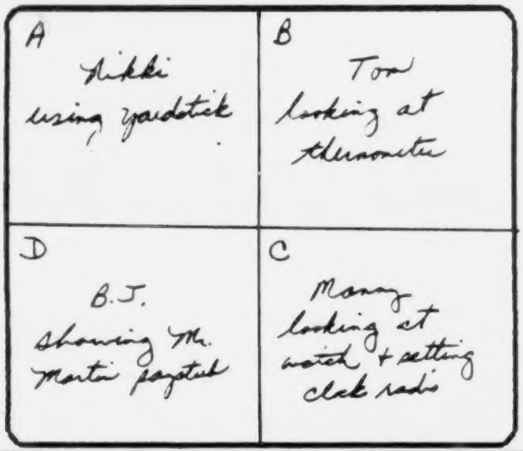
Math is used a lot in the working world. We use math to measure length, capacity, weight, and temperature. We also use math to tell time. And, we use math to deal with money - both the money we earn and the money we handle in our jobs.

This program deals with how much work-related math you know. It will help you find out if there are any areas you need to work on.

The four workers you'll see are faced with job problems that use math. But, first, here is information on how to work with this program.

NARRATOR: 1ST AUDIO OVER QUAD STILLS SET #1A-D

Math is used a lot in the working world.


A
Nikki using yardstick
B
Tom looking at thermometer
D
B.J. showing Mr. Martin paystub
C
Manny looking at watch + setting clock radio

NARRATOR: 1ST AUDIO OVER FULL SCREEN VIDEO FROM TOP LEFT STILL #1A

We use math to measure length, capacity,...

Nikki

NARRATOR: 1ST AUDIO OVER FULL SCREEN VIDEO FROM TOP RIGHT STILL #1B

...weight, and temperature.

Tom

NARRATOR: 1ST AUDIO OVER FULL SCREEN VIDEO FROM BOTTOM RIGHT STILL #1C

We also use math to tell time.

Manny

NARRATOR: 1ST AUDIO OVER FULL SCREEN VIDEO FROM BOTTOM LEFT STILL #1D

And, we use math to deal with money - both the money we earn...

B. J.

NARRATOR: 1ST AUDIO OVER FULL SCREEN VIDEO FROM TOP LEFT STILL #2A

...and the money we handle in our jobs.

2A

Nikki taking money from Ms. Houston

NARRATOR: 1ST AUDIO OVER FULL SCREEN VIDEO FROM TOP RIGHT STILL #2B

This program deals with how much work-related math you know.

2B

Tom looking at floor-plan + circling area of interest

NARRATOR: 1ST AUDIO OVER FULL SCREEN VIDEO FROM BOTTOM RIGHT STILL #2C

It will help you find out if there are any areas you need to work on.

2C

Manny measuring
some ingredient

NARRATOR: 1ST AUDIO OVER FULL SCREEN VIDEO FROM BOTTOM LEFT STILL #2D

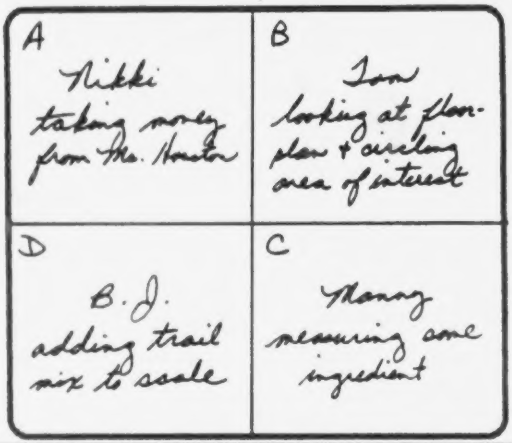
The four workers you'll see are faced with job problems that use math.

2D

B. J. adding trail
mix to scale

NARRATOR: 1ST AUDIO OVER QUAD STILLS SET #2A-D

But, first, here is information on how to work with this program.



A
Nikki
taking money
from Ms. Houston

B
Tom
looking at floor-
plan + circling
area of interest

D
B. J.
adding trail
mix to scale

C
Manny
measuring some
ingredient

NARRATOR: 2ND AUDIO

You will always touch the screen to answer the questions. But, you'll touch it in different ways for different kinds of questions. This is a demonstration to show you examples of the questions and how to answer them. Don't worry, though. When you're working in the program, each question always has directions for you.

For multiple choice questions you will touch the blue dot next to the answer you want. Look at the first example.
How many inches equal one foot?
There are four choices, but twelve inches is the correct answer.
So, you touch the blue dot next to that choice.
The dot changes color to show that your answer has been entered.
And, the program goes on.

Yes-No questions work the same way.
Are there twelve inches in one foot?
When you touch the blue dot, it changes color.
And, the program goes on.

Sometimes, the choices are shown as pictures, but they work the same way.
Which picture shows one foot?

You touch the blue dot next to the answer you want.
It changes color.
And, the program goes on.

Some questions want you to answer by touching a certain place on the screen. For example:

On this pay stub, you're asked how much was deducted for state taxes?
You find the amount on the pay stub and touch that number.
It changes color...
...and also shows up in the answer box.
Then, the program goes on.

You'll answer some questions by touching numbers on a bar and then touching the "enter" box. For example:

How many inches equal one foot?
Your answer is "twelve."So, you touch one, and then two.
The numbers show up in the answer box.
You check the box to make sure it's the answer you want.
Oops! It's the wrong number.
When this happens, just touch the "retry" box, and the problem will start over.

Now the answer is correct.
You touch "enter."
It changes color.
And, the program goes on.

Some questions want you to figure out how much of something you need for a job. You touch a picture as many times as you need to and then touch "enter." For example:

How many times should you fill this cup to measure three cups of milk?
You see that it holds one cup and you want three cups.
So, you touch it three times.
The cups show up in the answer box.
You check the box to make sure it's the answer you want. Three cups is correct.
So, you touch "enter."
And, the program goes on.

Do you want to try a sample question for yourself?
Touch the blue dot next to your answer.

You've got it!
How many inches equal one foot?
Touch the blue dot next to the correct answer.

You've probably noticed that each question has a "help" box. You can choose to get three kinds of help:

- Touching "Answers" describes how to work with this program and answer the different kinds of questions.
- Touching "Section Summary" provides a short explanation of the kind of math problems you'll have in that section.
- Touching "Glossary" gives definitions of some of the unusual or difficult words used in the program.

If there is some other help available, you can see it by touching "Special."

Try to answer every question. If you don't answer, a message will ask you to respond.

Work carefully and do your best. Good luck!

NARRATOR: 2ND AUDIO

You will always touch the screen to answer the questions. But, you'll touch it in different ways for different kinds of questions. This is a demonstration to show you examples of the questions and how to answer them. Don't worry, though. When you're working in the program, each question always has directions for you.

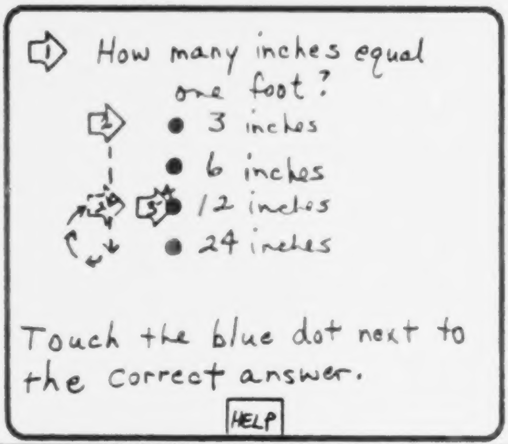
graphic of system +
hand touching screen

This intro is like a guided tour that is often done to show people how to use software. An animated object - finger, arrow, etc. moves to the place of interest on the screen while or just after it's described.

NARRATOR: 2ND AUDIO

For multiple choice questions you will touch the blue dot by the answer you want. Look at the first example.

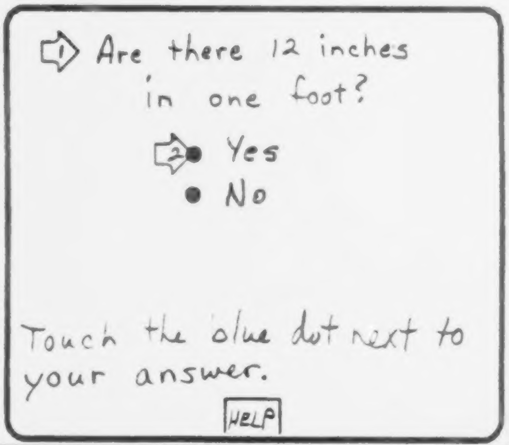
[1] How many inches equal one foot?
[2] There are four choices, but twelve inches is the correct answer.
[3] So, you touch the blue dot next to that choice.
[4] The dot changes color to show that your answer has been entered.
[5] And, the program goes on.


1
How many inches equal one foot?
2
● 3 inches
● 6 inches
3
5
4
● 12 inches
● 24 inches
Touch the blue dot next to the correct answer.
HELP

NARRATOR: 2ND AUDIO

Yes-No questions work the same way.

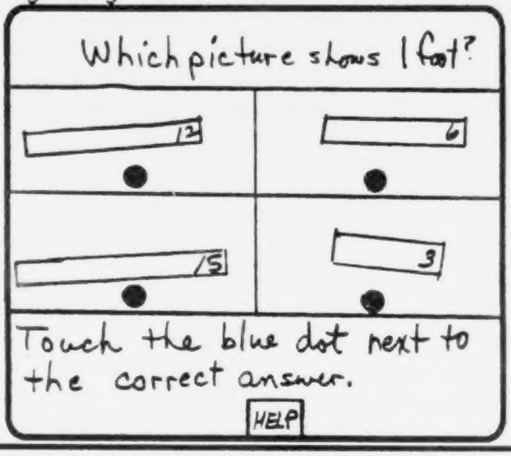
[1] Are there twelve inches in one foot?
[2] When you touch the blue dot, it changes color.
[3] And, the program goes on.


1
Are there 12 inches in one foot?
2
● Yes
● No
Touch the blue dot next to your answer.
HELP

NARRATOR: 2ND AUDIO

Sometimes, the choices are shown as pictures, but they work the same way.

[1] Which picture shows one foot?
[2] You touch the blue dot next to the answer we want.
[3] It changes color.
[4] And, the program goes on.



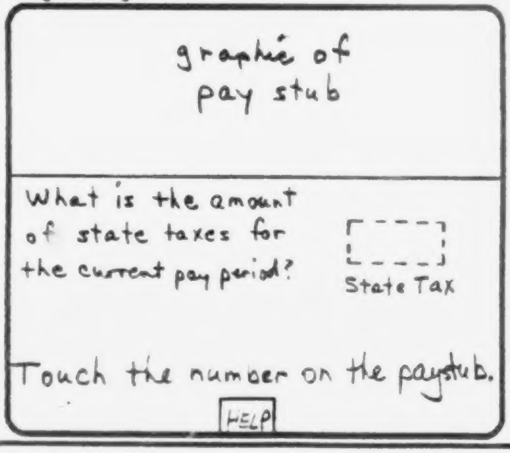
Which picture shows 1 foot?

Touch the blue dot next to the correct answer.

NARRATOR: 2ND AUDIO

Some questions want you to answer by touching a certain place on the screen. For example:

[1] On this pay stub, you're asked how much was deducted for state taxes?
[2] You find the amount on the pay stub and touch that number.
[3] It changes color...
[4] ...and also shows up in the answer box.
[5] Then, the program goes on.



graphic of pay stub

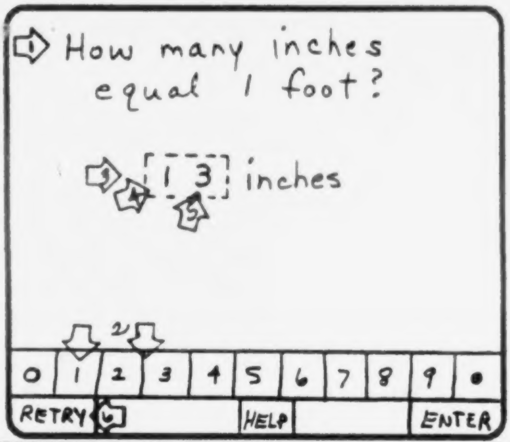
What is the amount of state taxes for the current pay period?

Touch the number on the paystub.

NARRATOR: 2ND AUDIO

You'll answer some questions by touching numbers on a bar and then touching the "enter" box. For example:

[1] How many inches equal one foot?
[2] Your answer is "twelve." So, you touch one, and then two.
[3] The numbers show up in the answer box.
[4] You check the box to make sure it's the answer you want.
[5] Oops! It's the wrong number.
[6] When this happens, just touch the "retry" box.
[7] And the problem will start over.

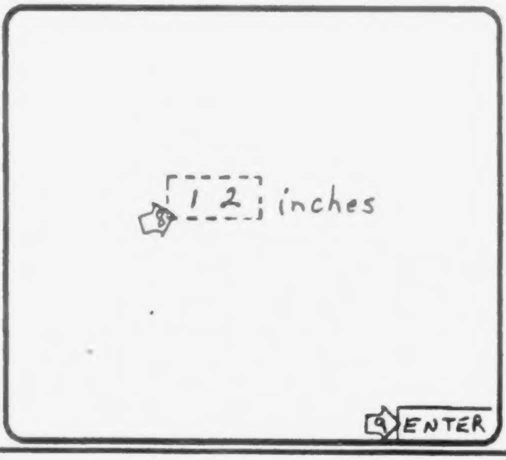


How many inches equal 1 foot?

1
3
4
5
1 3
inches
2
0
1
2
3
4
5
6
7
8
9
•
RETRY
6
HELP
ENTER

NARRATOR: 2ND AUDIO

[8] Now the answer is correct.
[9] You touch "enter."
[10]It changes color.
[11]And the program goes on.

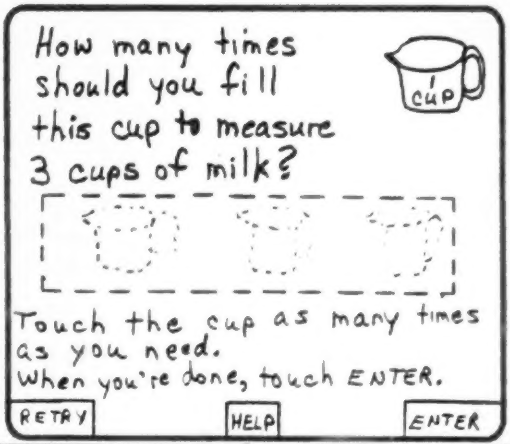


8
1 2
inches
9
ENTER

NARRATOR: 2ND AUDIO

Some questions want you to figure out how much of something you need for a job. You touch a picture as many times as you need to and then touch "enter." For example:

[1] How many times should you fill this cup to measure three cups of milk?
[2] You see that it holds one cup and you want three cups.
[3] So, you touch it three times.
[4] The cups show up in the answer box.
[5] You check the box to make sure it's the answer you want. Three cups is correct.
[6] So, you touch "enter."
[7] And, the program goes on.

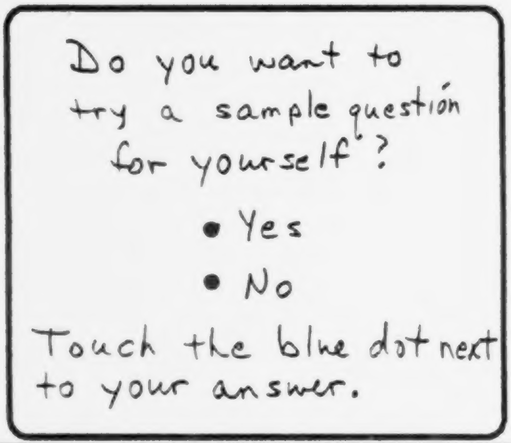


How many times should you fill this cup to measure 3 cups of milk?

Touch the cup as many times as you need.
When you're done, touch ENTER.

NARRATOR: 2ND AUDIO

Do you want to try a sample question for yourself?
Touch the blue dot next to your answer.



Do you want to try a sample question for yourself?

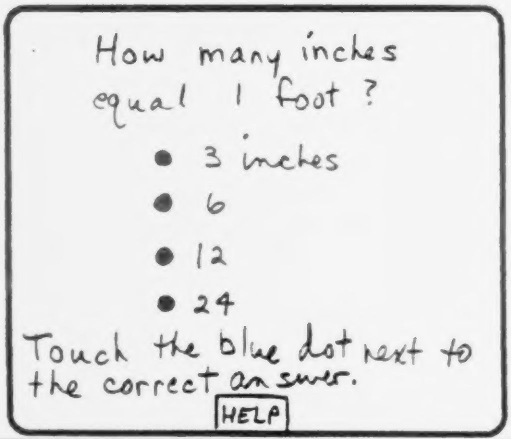
● Yes

● No

Touch the blue dot next to your answer.

NARRATOR: 2ND AUDIO

You've got it!
How many inches equal one foot?
Touch the blue dot next to the correct answer.



How many inches equal 1 foot?

● 3 inches

● 6

● 12

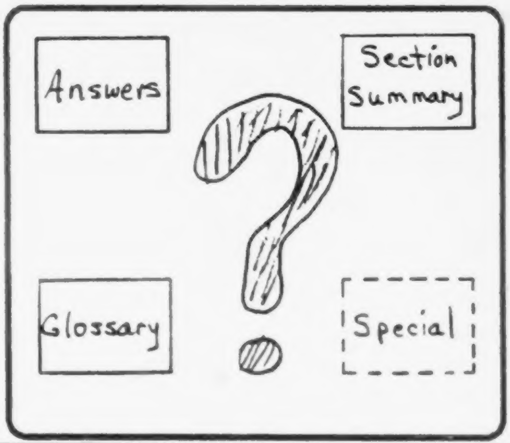
● 24

Touch the blue dot next to the correct answer.

NARRATOR: 2ND AUDIO

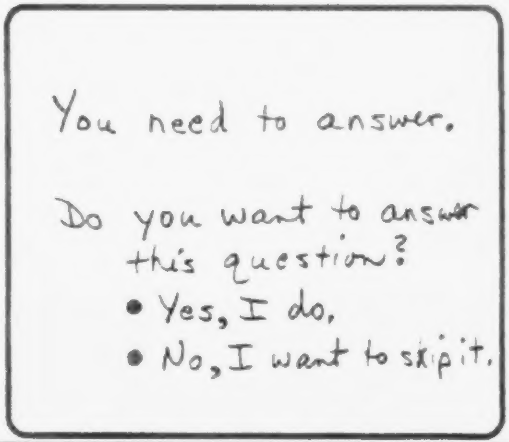
You've probably noticed that each example has a "help" box. You can choose to get three kinds of help:

[1] Touching "Answers" describes how to work with this program and answer the different kinds of questions.
[2] Touching "Section Summary" provides a short explanation of the kinds of math problems you'll have in that section.
[3] Touching "Glossary" gives definitions of some of the unusual or difficult words used in the program.
[4] If there is some other help available, you can see it by touching "Special."



NARRATOR: 2ND AUDIO

Try to answer every question. If you don't answer, a message will ask you to respond.



You need to answer.

Do you want to answer this question?
- Yes, I do.
- No, I want to skip it.

NARRATOR: 2ND AUDIO

Work carefully and do your best. Good luck!

[cdh] 5/27/88

Please record each of these for placement throughout the 2nd audio track - 3 or 4 times

You need to answer.

Try to answer the question.

Go ahead -- make your best guess.

You might want to touch the help box.

Do you want to answer this question?
Touch "yes" if you do.
Touch "no" if you want to skip it.

rev 5/3/88

Linear Measurement: Determining How Much You Have, Traditional and Measuring Out a Specific Quantity, Traditional
Scene LM-1
Character 4, Nikki
Character 8, customer, Ms. Jesse Houston
Small gallery/frame shop

Nikki is working behind the counter, which has a metal yardstick attached along edge, a 12-inch ruler, a metal tape measure, a yardstick (wood or metal), an order pad, a sales pad, stickers for writing prices, various pens and pencils, roll of double-sided tape, spool of wire, and a cash box. A frequent customer, Ms. Houston, enters carrying a bag with items in it and a rolled picture held with a rubber-band or clips. She has a shoulder purse.

NIKKI
(looking up toward door) Hi, Ms. Houston. How are you doing?

MS. HOUSTON
(walking toward counter) I'm fine, Nikki. (reaches counter and lays down bag and rolled picture) Is Miss Adams in? I have some things to be framed.

NIKKI
No, but she'll be in later today. I can take the measurements and write up your order, though. Miss Adams will call you if she has any questions.

MS. HOUSTON
That sounds good, Nikki.

Ms. Houston reaches into bag, pulls out a postcard, and holds it out toward Nikki

A friend sent this postcard to me, and I like it so much that I want it framed.

Nikki nods, takes postcard and lays it on counter
Ms. Houston reaches into bag, pulls out needlework piece, and opens up to show Nikki

[MS. HOUSTON, continued]
I just finished this, and I want it framed, too

NIKKI
You do nice work, Ms. Houston. (takes needlework and lays it on counter)

MS. HOUSTON
(points to rolled picture laying on counter) And, this is a poster I keep forgetting to bring in.

NIKKI
I'll measure these first, and then you can pick out the frames and any mats you want.

MS. HOUSTON
Fine. I want to look around, and there are some small things I need when you've finished.

NIKKI
Okay.

Ms. Houston exits picture.
Nikki spreads each picture out on counter; takes postcard and places directly in her working space.

Nikki looks at various measurement instruments. Fade or still.

GRAPHICS AND LABELS OF THREE INSTRUMENTS ACROSS TOP HALF TO TWO-THIRDS OF SCREEN

NARRATOR VO 2ND AUDIO

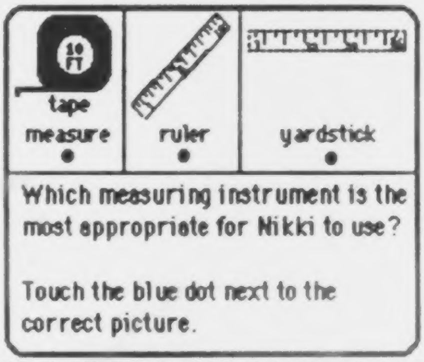
Which measuring instrument is most appropriate for Nikki to use with the postcard? Touch the blue dot next to the correct instrument.

TEXT:

WHICH MEASURING INSTRUMENT IS MOST APPROPRIATE FOR NIKKI TO USE WITH THE POSTCARD?

- TAPE MEASURE
- RULER
- YARDSTICK

TOUCH THE BLUE DOT NEXT TO THE CORRECT INSTRUMENT.



Which measuring instrument is the most appropriate for Nikki to use?

Touch the blue dot next to the correct picture.

VIDEO: Nikki picks up ruler

NIKKI
I'll use the ruler for this.

ZOOM-IN ON POSTCARD AND NIKKI'S HAND WITH RULER TO STILL

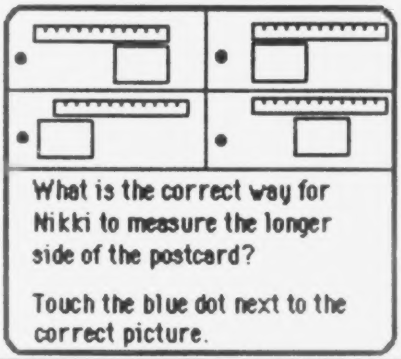
GRAPHIC SCREEN WITH POSTCARD CHOICES IN UPPER HALF AND TEXT SCREEN IN BOTTOM

NARRATOR VO- 2ND AUDIO

What is the correct way for Nikki to measure the longer side of the postcard? Touch the blue dot next to the correct picture.

TEXT:

WHAT IS THE CORRECT WAY FOR NIKKI TO MEASURE THE LONGER SIDE OF THE POSTCARD? TOUCH THE BLUE DOT NEXT TO THE CORRECT PICTURE.



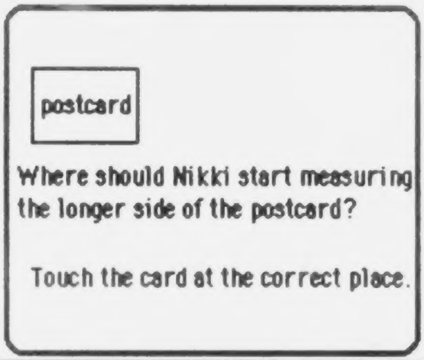
What is the correct way for Nikki to measure the longer side of the postcard?

Touch the blue dot next to the correct picture.

NARRATOR VO- 2ND AUDIO

Where should Nikki start measuring the longer side of the postcard? Touch the card at the correct place.

TEXT:
WHERE SHOULD NIKKI START MEASURING THE LONGER SIDE OF THE POSTCARD? TOUCH THE CARD AT THE CORRECT PLACE.



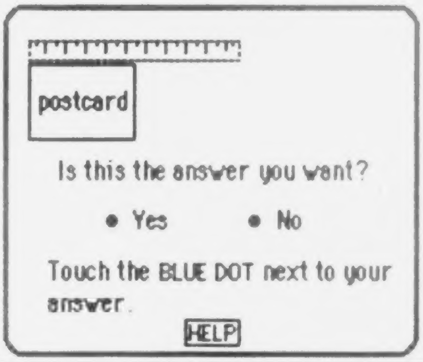
Where should Nikki start measuring the longer side of the postcard?

Touch the card at the correct place.

NARRATOR VO- 2ND AUDIO

Is this the answer you want? Touch the blue dot next to your answer.

TEXT:
IS THIS THE ANSWER YOU WANT? TOUCH THE BLUE DOT NEXT TO YOUR ANSWER.



Is this the answer you want?

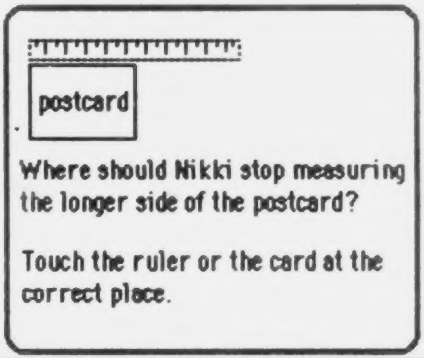
Touch the BLUE DOT next to your answer.

NARRATOR VO- 2ND AUDIO

Where should Nikki stop measuring the longer side of the postcard? Touch the ruler or the card at the correct place.

TEXT:

WHERE SHOULD NIKKI STOP MEASURING THE LONGER SIDE OF THE POSTCARD? TOUCH THE RULER OR THE CARD AT THE CORRECT PLACE.



Where should Nikki stop measuring the longer side of the postcard?

Touch the ruler or the card at the correct place.

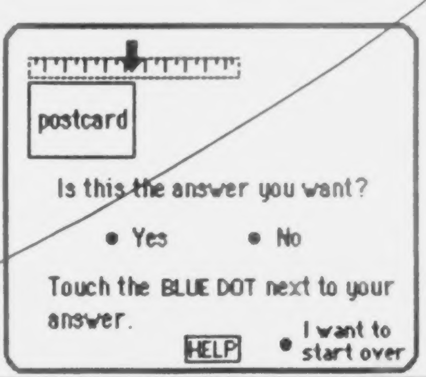
NARRATOR VO - 2ND AUDIO

Is this the answer you want?

TEXT:

IS THIS THE ANSWER YOU WANT? TOUCH THE BLUE DOT NEXT TO YOUR ANSWER.

delete



Is this the answer you want?

● Yes ● No

Touch the BLUE DOT next to your answer.

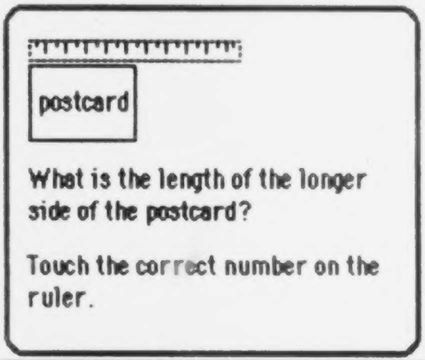
NARRATOR VO- 2ND AUDIO

What is the length of the longer side of the postcard? ~~Touch the correct number on the ruler~~.

CHANGE: DELETE LAST LINE

TEXT:

WHAT IS THE LENGTH OF THE LONGER SIDE OF THE POSTCARD? TOUCH THE BLUE DOT NEXT TO THE CORRECT ~~NUMBER ON THE RULER~~. ANSWER



What is the length of the longer side of the postcard?

Touch the correct number on the ruler.

- ● 5 inches
- ● 6 inches
- ● 7 inches
- ● 8 inches

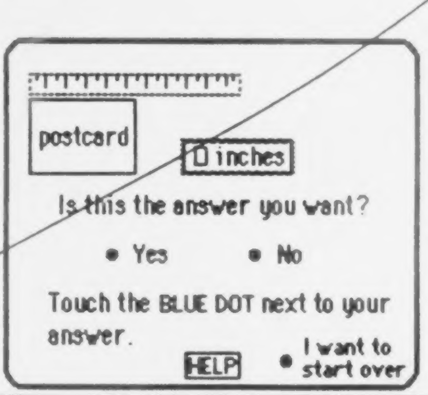
NARRATOR VO - 2ND AUDIO

Is this the answer you want?

TEXT:

IS THIS THE ANSWER YOU WANT? TOUCH THE BLUE DOT NEXT TO YOUR ANSWER.

DELETE



Is this the answer you want?

● Yes ● No

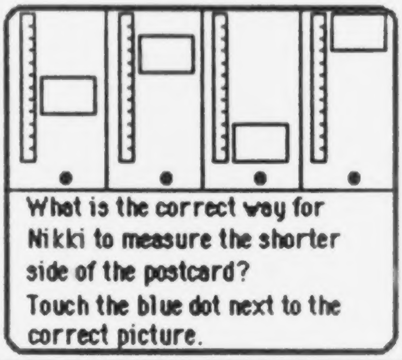
Touch the BLUE DOT next to your answer.

● I want to start over

NARRATOR VO- 2ND AUDIO

What is the correct way for Nikki
to measure the shorter side of the
postcard?

TEXT:
WHAT IS THE CORRECT WAY FOR NIKKI
TO MEASURE THE SHORTER SIDE OF THE
POSTCARD? TOUCH THE BLUE DOT NEXT
TO THE CORRECT PICTURE.



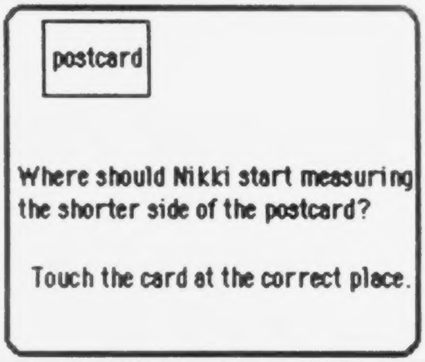
What is the correct way for
Nikki to measure the shorter
side of the postcard?
Touch the blue dot next to the
correct picture.

NARRATOR VO- 2ND AUDIO

Where should Nikki start measuring the shorter side of the postcard? Touch the card at the correct place.

TEXT:

WHERE SHOULD NIKKI START MEASURING THE SHORTER SIDE OF THE POSTCARD? TOUCH THE CARD AT THE CORRECT PLACE.



Where should Nikki start measuring the shorter side of the postcard?

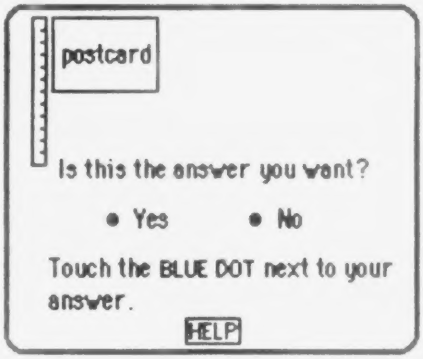
Touch the card at the correct place.

NARRATOR VO - 2ND AUDIO

Is this the answer you want?

TEXT:

IS THIS THE ANSWER YOU WANT? TOUCH THE BLUE DOT NEXT TO YOUR ANSWER.



Is this the answer you want?

● Yes ● No

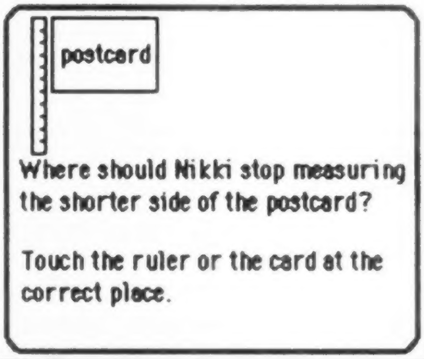
Touch the BLUE DOT next to your answer.

NARRATOR VO- 2ND AUDIO

Where should Nikki stop measuring the shorter side of the postcard? Touch the ruler or the card at the correct place.

TEXT:

WHERE SHOULD NIKKI STOP MEASURING THE SHORTER SIDE OF THE POSTCARD? TOUCH THE RULER OR THE CARD AT THE CORRECT PLACE.



Where should Nikki stop measuring the shorter side of the postcard?

Touch the ruler or the card at the correct place.

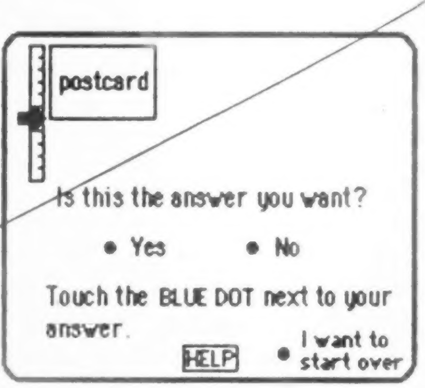
NARRATOR VO - 2ND AUDIO

Is this the answer you want?

TEXT:

IS THIS THE ANSWER YOU WANT? TOUCH THE BLUE DOT NEXT TO YOUR ANSWER.

DELETE



Is this the answer you want?

● Yes ● No

Touch the BLUE DOT next to your answer.

● I want to start over

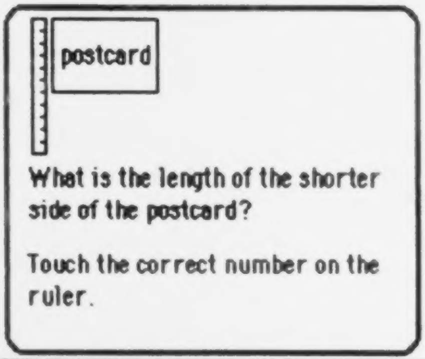
NARRATOR VO- 2ND AUDIO

What is the length of the shorter side of the postcard? ~~Touch the correct number on the ruler~~.

CHANGE: DELET
LAST LINE

TEXT:

WHAT IS THE LENGTH OF THE SHORTER SIDE OF THE POSTCARD? TOUCH THE BLUE DOT NEXT TO THE CORRECT ~~NUMBER ON THE RULER~~ ANSWER.



What is the length of the shorter side of the postcard?

Touch the correct number on the ruler.

- 2½ inches
- 3½ inches
- 4½ inches
- 5½ inches

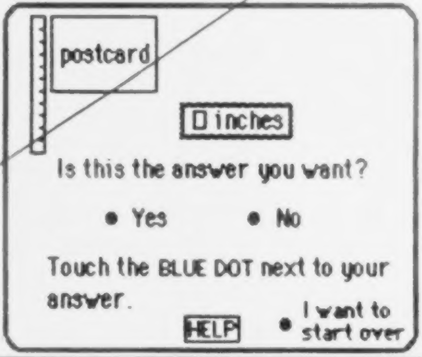
NARRATOR VO - 2ND AUDIO

Is this the answer you want?

TEXT:

IS THIS THE ANSWER YOU WANT? TOUCH THE BLUE DOT NEXT TO YOUR ANSWER.

DELETE



0 inches

Is this the answer you want?

● Yes ● No

Touch the BLUE DOT next to your answer.

HELP ● I want to start over

VIDEO - Nikki writes a number on order form and sets postcard aside. She moves needlework directly into her work space...

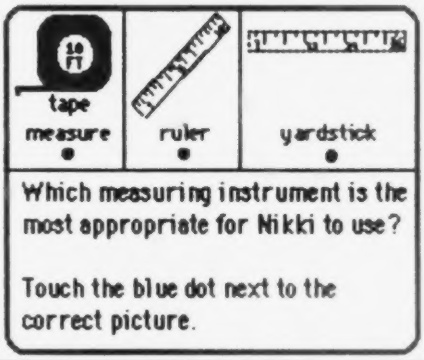
NIKKI
Moving right along

...and looks at various measurement instruments. Fade or still.

GRAPHICS AND LABELS OF THREE INSTRUMENTS ACROSS TOP HALF TO TWO-THIRDS OF SCREEN

NARRATOR VO 2ND AUDIO
Which measuring instrument is
most appropriate for Nikki to
use with the needlework?
Touch the blue dot next to the
correct instrument.

TEXT:
WHICH MEASURING INSTRUMENT IS
MOST APPROPRIATE FOR NIKKI TO
USE WITH THE NEEDLEWORK?
TOUCH THE BLUE DOT NEXT TO THE
CORRECT INSTRUMENT.



Which measuring instrument is the most appropriate for Nikki to use?

Touch the blue dot next to the correct picture.

VIDEO: Nikki picks up tape measure

NIKKI
I should use the tape measure for this.

ZOOM-IN ON NEEDLEWORK AND NIKKI'S HAND WITH TAPE MEASURE TO STILL

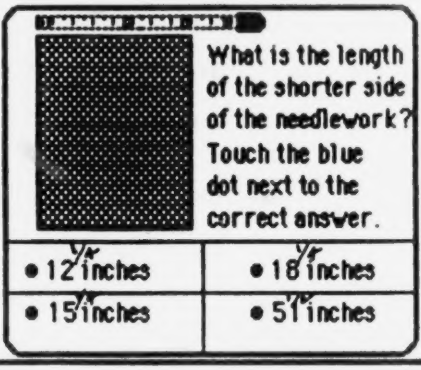
GRAPHIC SCREEN WITH NEEDLEWORK AND TAPE MEASURE ON LEFT, TEXT ON RIGHT, AND CHOICES AT BOTTOM

NARRATOR VO- 2ND AUDIO

What is the length of the shorter side of the needlework?

TEXT:

WHAT IS THE LENGTH OF THE SHORTER SIDE OF THE NEEDLEWORK? TOUCH THE BLUE DOT NEXT TO THE CORRECT ANSWER.



What is the length of the shorter side of the needlework? Touch the blue dot next to the correct answer.

● 12 1/4 inches	● 18 1/4 inches
● 15 1/4 inches	● 51 1/4 inches

add 1/4 to each

RULER DISAPPEARS AND CORRECT WIDTH MEASUREMENT IN INCHES APPEARS.

CHANGE

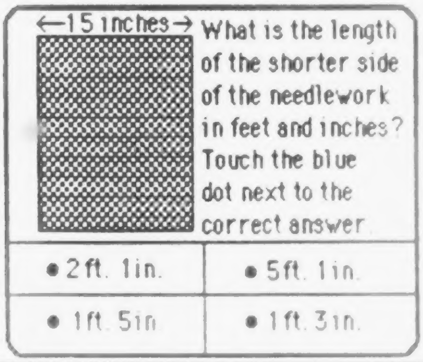
NARRATOR VO - 2ND AUDIO

~~You measured~~ The shorter side of
is fifteen and one-fourth
the needlework ~~15~~ inches. ~~What is~~ How much
the length of the ~~shorter side of~~
is that ~~the needlework~~ in feet and inches?

corrected NARRATOR VO

The shorter side ofthe needlework
is fifteen and one-fourth inches.
How much is that in feet and inches?

TEXT:
THE SHORTER SIDE OF THE NEEDLEWORK
IS 15 1/4 INCHES. HOW MUCH IS THAT
IN FEET AND INCHES?
TOUCH THE BLUE DOT NEXT TO THE
CORRECT ANSWER.



What is the length of the shorter side of the needlework in feet and inches? Touch the blue dot next to the correct answer.

● 2ft. 1in.	● 5ft. 1in.
● 1ft. 5in	● 1ft. 3in.

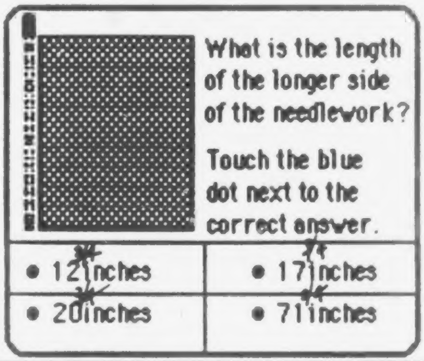
add 1/4

NARRATOR VO- 2ND AUDIO

What is the length of the longer side of the needlework?

TEXT:

WHAT IS THE LENGTH OF THE LONGER SIDE OF THE NEEDLEWORK? TOUCH THE BLUE DOT NEXT TO THE CORRECT ANSWER.



What is the length of the longer side of the needlework?

Touch the blue dot next to the correct answer.

● 12 3/4 inches	● 17 3/4 inches
● 20 3/4 inches	● 71 3/4 inches

add 3/4

VIDEO - Nikki puts poster directly into her work space, looks at various measurement instruments, and picks up yardstick.

ZOOM-IN ON POSTER AND NIKKI'S HAND WITH YARDSTICK TO STILL

GRAPHIC SCREEN WITH POSTER ON LEFT, TEXT ON RIGHT, AND CHOICES AT BOTTOM

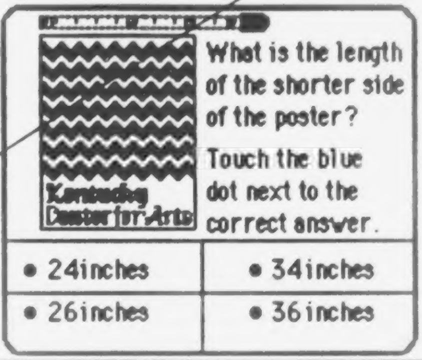
NARRATOR VO- 2ND AUDIO

What is the length of the shorter side of the poster?

TEXT:

WHAT IS THE LENGTH OF THE SHORTER SIDE OF THE POSTER? TOUCH THE BLUE DOT NEXT TO THE CORRECT ANSWER.

DELETE



What is the length of the shorter side of the poster?

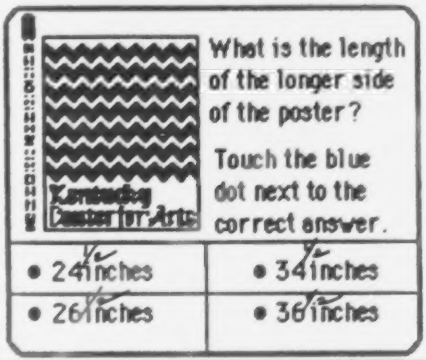
Touch the blue dot next to the correct answer.

● 24inches	● 34inches
● 26inches	● 36inches

NARRATOR VO- 2ND AUDIO

What is the length of the longer side of the poster?

TEXT:
WHAT IS THE LENGTH OF THE LONGER SIDE OF THE POSTER? TOUCH THE BLUE DOT NEXT TO THE CORRECT ANSWER.



What is the length of the longer side of the poster?

Touch the blue dot next to the correct answer.

● 24 ½ inches

● 34 ½ inches

● 26 ½ inches

● 36 ½ inches

add ½

LM-17

RULER DISAPPEARS AND CORRECT LENGTH MEASUREMENT IN INCHES APPEARS.

CHANGE

NARRATOR VO - 2ND AUDIO

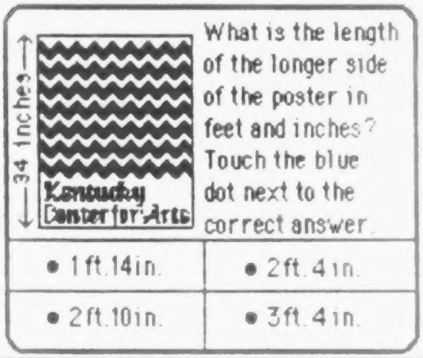
~~You measured the length of~~ The is thirty-four and one-half
longer side of the poster ~~in~~ inches.
How ~~long is the longer side of the~~ much is that
~~poster~~ in feet and inches?

corrected NARRATOR VO

The longer side of the poster is
thirty-four and one-half inches.
How much is that in feet and inches?

TEXT:

YOU MEASURED THE LENGTH OF THE LONGER SIDE OF THE POSTER IN INCHES. HOW LONG IS THE LONGER SIDE OF THE POSTER IN FEET AND INCHES? TOUCH THE BLUE DOT NEXT TO THE CORRECT ANSWER.



What is the length of the longer side of the poster in feet and inches? Touch the blue dot next to the correct answer.

● 1 ft. 14 in.	● 2 ft. 4 in.
● 2 ft. 10 in.	● 3 ft. 4 in.

add ½

PROPS:

2 metal yardsticks
12-inch ruler
metal tape measure
something to hold one of yardsticks to counter
order pad
sales pad with separate $ & ¢ columns

price stickers
several pens & pencils in holder
spool wire
roll double-sided tape
cash box
postcard
needlework
2 copies of poster - 1 rolled & held with rubber bands, 1 flat
bag for customer to carry items - Giant bag
shoulder purse
woman's wallet or change purse with at least:
    2 ones, 9 quarters, 12 dimes, 6 nickels, 13 pennies
a display board with packaged items for sale:
    1 roll brown paper, 1 prepackaged mat, 1 pkg screw eyes, 9 pkg picture hangers

rev 5/3/88

Linear Measurement: Determining How Much You Have, Traditional
and Measuring Out a Specific Quantity, Traditional
Scene LM-2
Character 4, Nikki
Character 8, customer, Ms. Jesse Houston
Small gallery/frame shop

VIDEO - Ms. Houston is at counter to which several mat and frame samples have been added. Off to one side near Ms. Houston, there is a package of eye screws, a hanger, and a box of hooks. Nikki is finishing the order form and looks up.

NIKKI
Well, I think this should look really good, Ms. Houston.

MS. HOUSTON
I do, too, Nikki (voice should rise just slightly on "too" indicating agreement - should not be haughty). Now, I need some things for a project I want to do myself. (slight pause). I'd like ten feet of hanging wire and a foot-and-a-half of double-sided tape.

NIKKI
Okay, that's ten feet of hanging wire (touches spool of wire) and a foot-and-a-half of double-sided tape (touches roll of tape).

Nikki pulls out wire along edge of mounted yardstick on counter; she should measure one yard, move right hand over to left position, and begin pulling out second yard

ZOOM-IN ON NIKKI'S HAND, WIRE, AND YARDSTICK TO STILL

GRAPHIC SCREEN OF YARDSTICK AND ROLL OF WIRE IN UPPER HALF AND TEXT SCREEN IN BOTTOM

NARRATOR VO - 2ND AUDIO

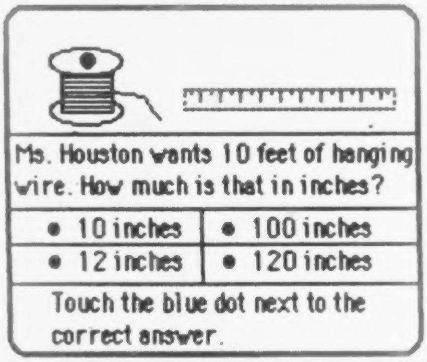
Ms. Houston wants ten feet of hanging wire. ~~How much is that in yards and feet?~~ How many inches is that?

CHANGE

TEXT SCREEN:

MS. HOUSTON WANTS 10 FEET OF HANGING WIRE. HOW ~~MUCH~~ MANY INCHES IS THAT? ~~IN INCHES~~? TOUCH THE BLUE DOT NEXT TO THE CORRECT ANSWER.

- ● ...10 inches
- ● ...12 inches
- ● ...100 inches
- ● ...120 inches



Ms. Houston wants 10 feet of hanging wire. How much is that in inches?

● 10 inches	● 100 inches
● 12 inches	● 120 inches

Touch the blue dot next to the correct answer.

GRAPHIC SCREEN OF YARDSTICK AND TAPE ROLL WITH SOME PULLED OUT TOWARD YARDSTICK - IN UPPER HALF AND TEXT SCREEN IN BOTTOM

NARRATOR VO - 2ND AUDIO

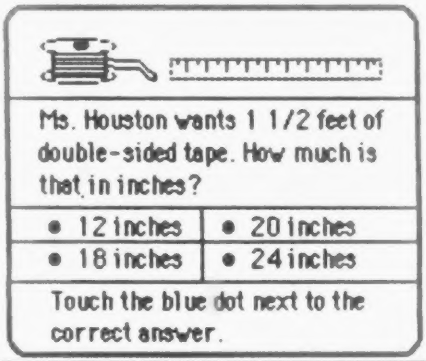
Ms. Houston wants a foot-and-a-half of double-sided tape. How many inches ~~much~~ is that? ~~in inches?~~

CHANGE

TEXT SCREEN:

MS. HOUSTON WANTS 1 1/2 FEET OF DOUBLE-SIDED TAPE. HOW MANY INCHES ~~MUCH~~ IS THAT? ~~IN INCHES?~~ TOUCH THE BLUE DOT NEXT TO THE CORRECT ANSWER.

- ● ...12 inches
- ● ...18 inches
- ● ...20 inches
- ● ...24 inches



Ms. Houston wants 1 1/2 feet of double-sided tape. How much is that in inches?

● 12 inches	● 20 inches
● 18 inches	● 24 inches

Touch the blue dot next to the correct answer.

VIDEO: wire is laying on counter, coiled with price tag on it; Nikki is coiling the tape

NIKKI

(as if to self) All right, done. Now I just need to put a price tag on this.

FADE

[Money Values - MV - continues story line]

GRAPHIC SCREEN OF VARIOUS TRADITIONAL AND METRIC MEASURING INSTRUMENTS

NARRATOR VO - 2ND AUDIO

Nikki has been using the traditional system to measure length in inches, feet, and yards. The metric system is another measurement system that you may have to work with. Answer the following questions about metric length. They are multiple choice. Just touch the blue dot next to the correct answer.

NARRATOR VO - 2ND AUDIO

What metric unit is about the same as a yard?

- centimeter
- meter
- millimeter
- kilometer [kill om' et er]

("unit" was missing on original but I think Tom caught it

TEXT:

WHAT METRIC UNIT IS ABOUT THE SAME AS A YARD?

- CENTIMETER
- METER
- MILLIMETER
- KILOMETER

TOUCH THE BLUE DOT NEXT TO THE CORRECT ANSWER.

NARRATOR VO - 2ND AUDIO

How many centimeters ~~are~~ equal ~~to~~
one meter?

CHANGE: 2 DELETE

TEXT:

HOW MANY CENTIMETERS ARE EQUAL
TO 1 METER?

- 10 centimeters
- 50 centimeters
- 100 centimeters
- 500 centimeters

TOUCH THE BLUE DOT NEXT TO THE
CORRECT ANSWER.

NARRATOR VO - 2ND AUDIO

How many meters equal one kilometer?

TEXT:

HOW MANY METERS EQUAL 1 KILOMETER?

● 100 meters
● 1000 meters
● 1760 meters
● 5280 meters

TOUCH THE BLUE DOT NEXT TO THE CORRECT ANSWER.

NARRATOR VO - 2ND AUDIO

What metric unit is about the same as two-thirds of a mile?

- centimeter
- meter
- millimeter
- kilometer

TEXT:

WHAT METRIC UNIT IS ABOUT THE SAME AS 2/3 OF A MILE?

- CENTIMETER
- METER
- MILLIMETER
- KILOMETER

TOUCH THE BLUE DOT NEXT TO THE CORRECT ANSWER.

cdh 3/17/88

PROPS: [add to LM-1]

several mat samples
severalframe samples
coil of wire (10 ft) with price tag of on it

REV 5/3/88 cdh

Finding Perimeter and Area of Rectangles
Scene GM - 1
Character 1, Tom
Character 5, Mr. Al Richmond
Inside House in Living Room (Family Room?)

Tom and Mr. Richmond are standing in the kitchen near the kitchen table (or a cleared off counter). Mr. Richmond is holding a clipboard which has a copy of the floorplan for the house on it.

MR. RICHMOND
Before we get started today, I'd really like to order the supplies that we'll need for some of the work we still have to do.

TOM
What's left, Mr. Richmond?

MR. RICHMOND
Well, let's see. Outside we need to put up the fence trim the owners want and inside we still have to lay that vinyl flooring in the family room and put in new baseboards. Let's figure out how much of the flooring materials we need first. I have a copy of the floorplan.

He pulls the floorplan off the clipboard.

MR. RICHMOND
You can figure out how much to order from this.

He hands Tom the floorplan.

MR. RICHMOND
See you in a few minutes.

Tom lays floorplan on the kitchen counter.

GO IN TO CLOSEUP OF FLOORPLAN and Tom's finger.

TOM
Okay, here's the room we need to order the baseboards and the flooring for. (Tom's index finger circles the room on the floorplan.)

GO TO CLOSEUP OF THE ROOM IN QUESTION ON THE FLOORPLAN.

VERTICAL SPLIT SCREEN WITH STILL IF CLEAR ENOUGH (OR GRAPHIC) OF FLOORPLAN ON LEFT AND TEXT SCREEN ON RIGHT.

NARRATOR VO - 2ND AUDIO
What ~~does~~ Should Tom ~~need to~~ do to find out how many feet of baseboard molding to order?
Touch the blue dot next to the correct answer.

CHANGE

SCREEN DESCRIPTION

IMAGE OF FLOORPLAN WITH FOCUS ON FAMILY ROOM (STILL OR GRAPHIC)

TEXT:
WHAT ~~DOES~~ SHOULD TOM ~~NEED TO~~ DO TO FIND OUT HOW MANY FEET OF BASEBOARD MOLDING TO ORDER?

- ○ MULTIPLY 9 x 15
- ○ ADD 9 + 9 + 15 +15
- ○ ADD 9 + 15 + 6 + 15
- ○ MULTIPLY 6 X 15

TOUCH THE BLUE DOT NEXT TO THE CORRECT ANSWER.

FOLLOWING STUDENT RESPONSE, THE SELECTED ANSWER CHANGES COLOR ON REVISED TEXT SCREEN. (NOTE: THIS IS STILL A SPLIT SCREEN AS ABOVE.)

NARRATOR VO 2ND AUDIO
Is this the answer you want?
Touch the blue dot next to your answer.

NO CHANGE

SCREEN DESCRIPTION

IMAGE OF FLOORPLAN WITH FOCUS ON FAMILY ROOM (STILL OR GRAPHIC)

TEXT:
WHAT DOES TOM NEED TO DO TO FIND OUT HOW MANY FEET OF BASEBOARD MOLDING TO ORDER?

SAME OPTIONS AS ABOVE WITH SELECTED ANSWER A BRIGHTER COLOR. (Note: If space is tight, only selected answer will remain.)

IS THIS THE ANSWER YOU WANT?

○ YES ○ NO

TOUCH THE BLUE DOT NEXT TO YOUR ANSWER.

WHATEVER THE STUDENT FINALLY SELECTS COMES UP ON FULL TEXT SCREEN SUCH AS:

NARRATOR VO - 2ND AUDIO
Work ~~out the answer to~~ this
problem to find out how much
molding to order. Touch the
numbers on the bar to answer.
When you're done, touch Enter.

CHANGE

==

TEXT SCREEN:
WORK ~~OUT THE ANSWER TO~~ THIS PROBLEM TO FIND OUT HOW MUCH MOLDING TO ORDER.

```
   9
  15
   6
+ 15
```

(RESPONSE WINDOW HERE)

TOUCH THE NUMBERS ON THE BAR TO ANSWER. WHEN YOU'RE DONE, TOUCH ENTER.

==

TOM
Well that's taken care of. Now
I need to figure out how much
sheet vinyl Mr. Richmond
should order. I don't want to
order too much, but I need to be
careful so that we have enough.

GO TO CLOSEUP OF FLOORPLAN AND FREEZE ON ROOM IN QUESTION.

VERTICAL SPLIT SCREEN WITH STILL (OR GRAPHIC) OF FLOORPLAN ON LEFT AND TEXT SCREEN ON RIGHT.

NARRATOR VO - 2ND AUDIO
What ~~does~~ should Tom ~~need to~~ do to find
out how many square feet of vinyl flooring
to order?

CHANGE

==

IMAGE OF FLOORPLAN WITH FOCUS ON FAMILY ROOM (STILL OR GRAPHIC)

TEXT:
WHAT DOES TOM NEED TO DO TO FIND OUT HOW MANY SQUARE FEET OF VINYL FLOORING TO ORDER?

○ MULTIPLY 6 x 15
○ ADD 9 + 15 + 6 + 15
○ MULTIPLY 9 x 15
○ ADD 9 + 9 + 15 + 15

TOUCH THE BLUE DOT NEXT TO CORRECT ANSWER.

FOLLOWING STUDENT RESPONSE, THE SELECTED ANSWER CHANGES COLOR ON REVISED TEXT SCREEN. (NOTE: THIS IS STILL A SPLIT SCREEN AS ABOVE.)

NARRATOR VO 2ND AUDIO
Is this the answer you want?

NO CHANGE

IMAGE OF FLOORPLAN WITH FOCUS ON FAMILY ROOM (STILL OR GRAPHIC)

TEXT:
WHAT DOES TOM NEED TO DO TO FIND OUT HOW MANY SQUARE FEET OF VINYL FLOORING TO ORDER?

SAME OPTIONS AS ABOVE WITH SELECTED ANSWER A BRIGHTER COLOR. (Note: If space is tight, only selected answer will remain.)

IS THIS THE ANSWER YOU WANT?

○ YES ○ NO

TOUCH THE BLUE DOT NEXT TO YOUR ANSWER.

WHATEVER THE STUDENT HAS SELECTED COMES UP ON A FULL TEXT SCREEN SUCH AS:

NARRATOR VO - 2ND AUDIO
Work ~~out the answer to~~ this problem to find out how many square feet of vinyl to order. Touch the numbers on the bar to answer. When you're done, touch enter.

CHANGE

TEXT SCREEN:
WORK OUT THE ANSWER TO THIS PROBLEM TO FIND OUT HOW MANY SQUARE FEET OF VINYL TO ORDER.

$$\begin{array}{r} 15 \\ \times\ 9 \\ \hline \end{array}$$

(RESPONSE WINDOW HERE)

TOUCH THE NUMBERS ON THE BAR TO ANSWER. WHEN YOU'RE DONE, TOUCH ENTER.

TOM

Hmmm. I wonder if Mr. Richmond wanted this measurement in square feet or square yards. Maybe I should figure out how many square yards it would be. Then I can tell him both and let him decide.

TEXT SCREEN APPEARS.

NARRATOR VO - 2ND AUDIO

What ~~does~~ should Tom ~~need to~~ do to find out how many square yards of vinyl are needed?

CHANGE

==

TEXT SCREEN:

WHAT DOES TOM NEED TO DO TO FIND OUT HOW MANY SQUARE YARDS OF VINYL ARE NEEDED. ~~REMEMBER, YOU SAID HE~~

REMEMBER, YOU SAID HE NEEDED (PREVIOUS ANSWER) SQUARE FEET.

○ DIVIDE (PREVIOUS ANSWER) / 3
○ MULTIPLY (PREVIOUS ANSWER) X 9
○ MULTIPLY (PREVIOUS ANSWER) X 5
○ DIVIDE (PREVIOUS ANSWER) / 9

TOUCH THE BLUE DOT NEXT TO THE CORRECT ANSWER.

==

FOLLOWING STUDENT RESPONSE, THE SELECTED ANSWER CHANGES COLOR ON REVISED TEXT SCREEN.

NARRATOR VO (2ND AUDIO)

Is this the answer you want?

NO CHANGE

==

TEXT SCREEN:

WHAT DOES TOM NEED TO DO TO FIND OUT HOW MANY SQUARE YARDS OF VINYL ARE NEEDED?

SAME OPTIONS AS ABOVE WITH SELECTED ANSWER A BRIGHTER COLOR.

IS THIS THE ANSWER YOU WANT?

○ YES ○ NO

TOUCH THE BLUE DOT NEXT TO YOUR ANSWER.

==

WHATEVER THE STUDENT HAS SELECTED COMES UP ON FULL TEXT SCREEN SUCH AS:

NARRATOR VO - 2ND AUDIO
Work ~~out the answer to~~ this
problem to find out how many
square yards of vinyl are needed.

CHANGE

==

TEXT SCREEN:
WORK OUT THE ANSWER TO THIS PROBLEM TO FIND OUT HOW MANY SQUARE YARDS OF VINYL ARE NEEDED.

DIVISOR SELECTED) DIVIDEND SELECTED

TOUCH THE NUMBERS ON THE BAR TO ANSWER. WHEN YOU'RE DONE, TOUCH ENTER.

==

Tom is writing some figures down on a piece of paper next to the floorplan.

TOM
Well, I think I'm ready to give
these to Mr. Richmond and
get my next assignment.

Tom walks out of the room to find Mr. Richmond.

epr/4/28/88

PROP LIST FOR GM - 1:
Clipboard
Pencil
Scratch Paper (Yellow Lined?)
Blank Order forms
Floorplan
Pen
Scratch Paper (Yellow lined)

Finding Perimeter: Of Polygons Other than Rectangles
Scene GM - 2
Character 1. Tom
Character 5, Mr. Al Richmond
Outside House (In backyard near fence)

Tom and Mr. Richmond are in the back yard near the fence. Mr. Richmond is holding a clipboard on which he is writing (maybe working on his order form). Tom walks up and approaches Mr. Richmond. Tom is carrying a piece of paper (same piece of paper he was writing on in previous scene), the scratchpad, pencil and floorplan.

TOM
Oh, Mr. Richmond. I finished figuring out how much vinyl flooring and molding we need.

Tom hands the piece of paper to Mr. Richmond.

MR. RICHMOND
Good, Tom. Now we need to figure out how much fence trim to order.

Mr. Richmond picks up the fence trim sample to demonstrate its positioning on the fence.

MR. RICHMOND
We'll attach this trim along the top of the fence that's already here, like so.

TOM
That'll look nice.

MR. RICHMOND
Yes, it will. Now the fence trim comes in 6 foot sections. So figure out how many feet of fence are already here. Then figure out how many sections of trim we need to order.

TOM
Do you have the big tape measure so I can measure the fence.

MR. RICHMOND
You can use the scale drawing of the house that I gave you. The fence line is shown on there too. Let me know when you're done. I'll probably be in the ___.

Mr. Richmond walks away. Tom puts the plat down on the bench on the deck and then kneels down on the deck itself.

GO TO CLOSEUP OF FLOORPLAN (SCALE DRAWING).

Tom runs his finger along the fenceline shown on the drawing.

TOM

The trim needs to be along the whole fence. So -- I can just use the fence measurements from the drawing to figure out how much to order. drawing to figure out how much to order.

GO TO CLOSEUP OF THE SCALE DRAWING ALONE.

VERTICAL SPLIT SCREEN WITH STILL (OR GRAPHIC) OF PLAT ON LEFT AND TEXT SCREEN ON RIGHT.

NARRATOR VO - 2ND AUDIO

What ~~does~~ should Tom ~~need to~~ do to find out how many feet of fence trim to order?

CHANGE

==

	TEXT:
IMAGE OF SCALE DRAWING WITH FOCUS ON THE FENCELINE (STILL OR GRAPHIC)	WHAT DOES TOM NEED TO DO TO FIND OUT HOW MANY FEET OF FENCE TRIM TO ORDER?
	o ADD 42 + 42 + 54 o MULTIPLY 42 x 42 o MULTIPLY 42 x 54 o ADD 6 + 42 + 42 + 54 + 6

TOUCH THE BLUE DOT NEXT TO THE CORRECT ANSWER

==

FOLLOWING STUDENT RESPONSE, THE SELECTED ANSWER CHANGES COLOR ON REVISED TEXT SCREEN. (NOTE: THIS IS STILL A SPLIT SCREEN AS ABOVE.)

NARRATOR VO - 2ND AUDIO)
Is this the answer you want?

NO CHANGE

IMAGE OF SCALE DRAWING WITH FOCUS ON FENCE LINE (STILL OR GRAPHIC)	TEXT WHAT DOES TOM NEED TO DO TO FIND OUT HOW MANY FEET OF FENCE TRIM TO ORDER? SAME OPTIONS AS ABOVE WITH SELECTED ANSWER A BRIGHTER COLOR. (If space is tight, only selected answer will remain.) IS THIS THE ANSWER YOU WANT? ○ YES ○ NO

TOUCH THE BLUE DOT NEXT TO YOUR ANSWER.

WHATEVER THE STUDENT HAS SELECTED COMES UP ON FULL TEXT SCREEN SUCH AS:

NARRATOR VO - 2ND AUDIO
Work ~~out the answer to~~ this problem to find out how much fence trim to order.

CHANGE

TEXT SCREEN:
WORK OUT THE ANSWER TO THIS PROBLEM TO FIND OUT HOW MUCH FENCE TRIM TO ORDER.

```
      6
     42
     42
     54
  +   6
-----------
```

(RESPONSE WINDOW HERE)

TOUCH THE NUMBERS ON THE BAR TO ANSWER. WHEN YOU'RE DONE, TOUCH ENTER.

CHANGE

NARRATOR VO - 2ND AUDIO

What Should ~~does~~ Tom ~~need to~~ do to
find out how many 6-foot
sections of fence trim to
order?

==

TEXT SCREEN:
WHAT DOES TOM NEED TO DO TO FIND OUT HOW MANY 6 FOOT SECTIONS OF FENCE TRIM TO ORDER?

REMEMBER YOU SAID HE NEEDED (PREVIOUS ANSWER) FEET.

MULTIPLY	(PREVIOUS ANSWER) X 6
DIVIDE	(PREVIOUS ANSWER) / 6
MULTIPLY	(PREVIOUS ANSWER) X 12
DIVIDE	(PREVIOUS ANSWER) / 12

TOUCH THE BLUE DOT NEXT TO THE CORRECT ANSWER.

==

TOM

I think I've just about got it
now. There -- I can take this
to Mr. Richmond, and then, get on
with the painting we need to do today.

Tom picks up the plat, scratch paper, and pencil and goes to look for Mr. Richmond.

epr/4/28/88

PROP LIST FOR GM -2:
Same props as for GM - 1

rev 5/3/88

Capacity Measurement
Scene CM-1
Character 2, Manny
Character 6, Mrs. Young
Kitchen

VIDEO - Scene opens with CU of recipe Manny is about to start making. Manny has gotten all the ingredients out for the cake and is surrounded by bowls, ingredients, utensils, etc. He is looking over the recipe. Mrs. Young enters with her clipboard, checking her schedule of things to do for dinner tonight.

MRS. YOUNG
Good morning, Manuel.

MANNY
Morning, Mrs. Young.

MRS. YOUNG
What are you working on?

MANNY
I thought I'd start on the cheesecake.

MRS. YOUNG
Great. I'm going to run out in a minute. We may be low on some things, so make sure you have enough of everything.

MANNY
Sure, Mrs. Young.

Shot of Manny reading recipe

MANNY
Okay, first I need to measure the graham cracker crumbs.

GRAPHIC SCREEN OF MEASURING CUPS, EACH A DIFFERENT COLOR AND LABELED IN AMOUNTS - 1 CUP, 1/2 CUP, 1/3 CUP, 1/4 CUP. WHEN THE STUDENT TOUCHES SCREEN THAT CUP WILL APPEAR ON NEXT SCREEN.

NARRATOR VO - 2ND AUDIO

Which cup is most appropriate for Manny to use to measure two cups of crumbs? Touch the blue dot next to the correct answer.

TEXT SCREEN:

WHICH CUP IS MOST APPROPRIATE FOR MANNY TO USE TO MEASURE TWO CUPS OF CRUMBS?

● ...1 cup
● ...1/2 cup
● ...1/3 cup
● ...1/4 cup

TOUCH THE BLUE DOT NEXT TO THE CORRECT ANSWER.

GRAPHIC SCREEN SIMILAR TO PREVIOUS

NARRATOR VO - 2ND AUDIO

How many times should Manny fill this cup to measure two cups? Touch the cup as many times as you need. When you're done, touch enter.

GRAPHIC SCREEN SIMILAR TO PREVIOUS

NARRATOR VO - 2ND AUDIO

Suppose that cup was missing. Then, Which ~~other~~ cup ~~could you use to~~ would be most appropriate to measure the two cups of crumbs?

CHANGE

TEXT SCREEN:
SUPPOSE THAT CUP WAS MISSING.
WHICH OTHER CUP COULD YOU USE TO
MEASURE THE TWO CUPS OF CRUMBS?
TOUCH THE BLUE DOT NEXT TO THE
CORRECT ANSWER.

XX● ...1 cupXX
● ...1/2 cup
● ...1/3 cup
● ...1/4 cup

GRAPHIC SCREEN SIMILAR TO PREVIOUS WITH SELECTED CUP ON SCREEN

NARRATOR VO - 2ND AUDIO
How many times should you fill this cup to measure two cups? Touch the cup as many times as you need.When you're done, touch enter.

VIDEO: Manny pouring crumbs into bowl

MANNY
And a stick of butter (unwraps and drops into bowl). ... There's the crust (moves bowl out of way)

Shot of these ingredients together in bowl and back to Manny, who is referring back to recipe.

MANNY

Next the filling.

He lays his hand on each of the "non-measure" ingredients as he checks them off mentally.

MANNY

Eggs, check. Cream cheese and the chocolate bits are already weighed out here. Let's see - sugar, two-thirds of a cup...

GRAPHIC SCREEN OF CUPS

NARRATOR VO - 2ND AUDIO

Which cup is most appropriate for Manny to use to measure two-thirds of a cup of sugar?

TEXT:

WHICH CUP IS MOST APPROPRIATE FOR MANNY TO USE TO MEASURE 2/3 CUP OF SUGAR?

- ...1 cup
- ...1/2 cup
- ...1/3 cup
- ...1/4 cup

TOUCH THE BLUE DOT NEXT TO THE CORRECT ANSWER.

DELETE

GRAPHIC SCREEN SIMILAR TO PREVIOUS WITH SELECTED CUP ON SCREEN

NARRATOR VO - 2ND AUDIO

How many times should Manny fill the one-third ~~this~~ cup to measure two-thirds of a cup~~?~~ of sugar? Touch the cup as many times as you need.When you're done, touch enter.

CHANGE

GRAPHIC SCREEN OF SPOONS: 1 TABLESPOON, 1 TEASPOON, 1/2 TEASPOON, 1/4 TEASPOON

NARRATOR VO - 2ND AUDIO

Which spoon is most appropriate for Manny to use to measure 3 tablespoons of orange juice?

TEXT:

WHICH SPOON IS MOST APPROPRIATE FOR MANNY TO USE TO MEASURE 3 TABLESPOONS OF ORANGE JUICE? TOUCH THE BLUE DOT NEXT TO THE CORRECT ANSWER.

● ...1 TABLESPOON
● ...1 TEASPOON
● ...1/2 TEASPOON
● ...1/4 TEASPOON

GRAPHIC SCREEN SIMILAR TO PREVIOUS

NARRATOR VO - 2ND AUDIO
How many times should Manny fill the spoon to measure three table spoons of orange juice? Touch the spoons of orange juice? Touch the spoon as many times as you need. When you're done, touch enter.|

MANNY
... three [as if counting]. Sugar, yes. and vanilla. (peers through vanilla bottle) There's not that much here. I wonder if we've got two teaspoons

GRAPHIC SCREEN OF SPOONS: 1 TABLESPOON, 1 TEASPOON, 1/2 TEASPOON, 1/4 TEASPOON

NARRATOR VO - 2ND AUDIO

Which spoon is most appropriate for Manny to use to measure 2 teaspoons of vanilla?

TEXT:

WHICH SPOON IS MOST APPROPRIATE FOR MANNY TO USE TO MEASURE 2 TABLESPOONS OF VANILLA? TOUCH THE BLUE DOT NEXT TO THE CORRECT ANSWER.

~~● ...1 TABLESPOON~~
● ...1 TEASPOON
● ...1/2 TEASPOON
● ...1/4 TEASPOON
● 1/8 TEASPOON

GRAPHIC SCREEN SIMILAR TO PREVIOUS

NARRATOR VO - 2ND AUDIO

How many times should Manny fill the spoon to measure two teaspoons of vanilla? Touch the spoon as many times as you need. When you're done, touch enter.|

GRAPHIC SCREEN SIMILAR TO PREVIOUS

NARRATOR VO - 2ND AUDIO

Suppose that spoon was missing. Then,
Which ~~other~~ spoon ~~could you use to~~ would be most
appropriate to measure the two teaspoons of
vanilla?

CHANGE

TEXT SCREEN:
SUPPOSE THAT SPOON WAS MISSING.
WHICH OTHER SPOON COULD YOU USE TO
MEASURE THE TWO TEASPOONS OF
VANILLA?

~~● ...1 tablespoon~~
XX● ...1teaspoonXX
● ...1/2 teaspoon
● ...1/4 teaspoon
1/8

GRAPHIC SCREEN SIMILAR TO PREVIOUS WITH SELECTED SPOON ON SCREEN

NARRATOR VO - 2ND AUDIO

How many times should you fill this spoon to measure two teaspoons of vanilla? Touch the spoon as many times as you need. When you're done, touch enter.

VIDEO: Shot of Manny dumping the vanilla into the bowl

MANNY

Great. And now, cream.

Manny reaches for the pint of carton of cream and sticks his eyeball up to opening. He reaches for a graduated measuring glass and pours remaining cream in. The mark on the side shows that he has just over 3/4 cup.

GRAPHIC SCREEN

NARRATOR VO - 1ST AUDIO

Does Manny have enough cream, three-fourths of a cup, for the cake?

TEXT SCREEN:

DOES MANNY HAVE ENOUGH CREAM, THREE-FOURTHS OF A CUP, FOR THE CAKE? TOUCH THE, BLUE DOT NEXT TO YOUR ANSWER

- ...yes
- ...no

MANNY

[dusting off his hands] Ooo-la-la, this is going to be so good.

Mrs. Young enters from next room.

Mrs Young, we're fine on the ingredients for the cake. And, you're right; we are nearly out of sugar and we're all out of cream. I'll do the ordering this afternoon.

cdh 3/17/88
PROPS:

clipboard & pen
sugar, orange juice, graham cracker crumbs, butter, four eggs, pkg cream cheese and chocolate bits, a set of measuring cups and spoons, bowls, graduated glass cups and the recipe; springform pan if possible

Capacity Measurement rev 3-25-88
Scene CM-2
Character 2, Manny
Kitchen

Props: blackboard and chalk, handwritten note, pencil, recipe, another recipe with "times 4" column and lines drawn for Manny to fill in.

Manny is finishing the lettering on a blackboard for the restaurant's window that reads "Today's Special: Crab Soup - $3.95. He approaches the counter, picks up the note, reads it, then picks up the recipe.

CAROL

C.U.

1/2 cup rice
1 cup crab meat
1 pint heavy cream
3/4 tsp Tabasco
1 quart clam juice
2 ounces Worcestershire sauce
salt and pepper
Garnish with chopped parsley

MANNY V.O. (~~2nd~~ 1st audio)
MANNY --
PLEASE QUADRUPLE (times four)
THIS RECIPE FOR TODAY'S
SPECIAL. JUST GO AHEAD AND
WRITE ON THE CARD. BACK
SHORTLY --
MRS. Y

alternate:

MRS. YOUNG V.O. (2nd audio)
MANNY --
PLEASE QUADRUPLE (times four)
THIS RECIPE FOR TODAY'S
SPECIAL. JUST GO AHEAD AND
WRITE ON THE CARD. BACK
SHORTLY --
MRS. Y

alternate 2:

Mrs. Young's voice with
"that's times four"

MANNY
[reading from recipe]
Cook rice in clam juice until soft. Add butter. Whirl in blender da da da da....
[puts recipe down on the counter, reaches for a pen and bends over the recipe]
And Mrs. Young says to make four times this recipe.

cut about 09 05 41 16
through remainder
start again CM-3

CM2-1

GRAPHIC SCREEN OF RECIPE AT TOP WITH SPACES AND LABELS FOR PART A AND PART B QUESTIONS.

NARRATOR VO - 2ND AUDIO

How many cups of rice will Manny use? Remember, he's making four times the recipe. Touch the numbers on the bar to answer. When you're done, touch enter.

TEXT SCREEN:
HOW MANY CUPS OF RICE WILL MANNY USE? REMEMBER, HE'S MAKING FOUR TIMES THE RECIPE. TOUCH THE NUMBERS ON THE BAR TO ANSWER. WHEN YOU'RE DONE, TOUCH ENTER.

GRAPHIC SCREEN OF RECIPE AT TOP WITH SPACES AND LABELS FOR PART A AND PART B QUESTIONS.

NARRATOR VO - 2ND AUDIO

How many pints is that? Touch the numbers on the bar to answer. When you're done, touch enter.

TEXT SCREEN:
HOW MANY PINTS IS THAT?
TOUCH THE NUMBERS ON THE BAR TO ANSWER. WHEN YOU'RE DONE, TOUCH ENTER.

GRAPHIC SCREEN OF RECIPE AT TOP WITH SPACES AND LABELS FOR PART A AND PART B QUESTIONS.

NARRATOR VO - 2ND AUDIO

How many pints of cream will Manny use? Remember, he's making four times the recipe.

TEXT SCREEN:

HOW MANY PINTS OF CREAM WILL MANNY USE? REMEMBER, HE'S MAKING FOUR TIMES THE RECIPE. TOUCH THE NUMBERS ON THE BAR TO ANSWER. WHEN YOU'RE DONE, TOUCH ENTER.

GRAPHIC SCREEN OF RECIPE AT TOP WITH SPACES AND LABELS FOR PART A AND PART B QUESTIONS.

NARRATOR VO - 2ND AUDIO

How many quarts is that?

TEXT SCREEN:

HOW MANY QUARTS IS THAT?

TOUCH THE NUMBERS ON THE BAR TO ANSWER. WHEN YOU'RE DONE, TOUCH ENTER.

GRAPHIC SCREEN OF RECIPE AT TOP WITH SPACES AND LABELS FOR PART A AND PART B QUESTIONS.

NARRATOR VO - 2ND AUDIO

How many teaspoons of hot sauce will Manny use?

TEXT SCREEN:

HOW MANY TEASPOONS OF HOT SAUCE WILL MANNY USE?

REMEMBER, HE'S MAKING FOUR TIMES THE RECIPE. TOUCH THE NUMBERS ON THE BAR TO ANSWER. WHEN YOU'RE DONE, TOUCH ENTER.

GRAPHIC SCREEN OF RECIPE AT TOP WITH SPACES AND LABELS FOR PART A AND PART B QUESTIONS.

NARRATOR VO - 2ND AUDIO
How many tablespoons is that?

TEXT SCREEN:
HOW MANY TABLESPOONS IS THAT?
TOUCH THE NUMBERS ON THE BAR TO ANSWER. WHEN YOU'RE DONE, TOUCH ENTER.

GRAPHIC SCREEN OF RECIPE AT TOP WITH SPACES AND LABELS FOR PART A AND PART B QUESTIONS.

NARRATOR VO - 2ND AUDIO

How many quarts of clam juice will Manny use?

TEXT SCREEN:
HOW MANY QUARTS OF CLAM JUICE
WILL MANNY USE?
REMEMBER, HE'S MAKING FOUR TIMES THE
RECIPE. TOUCH THE NUMBERS ON THE BAR TO
ANSWER. WHEN YOU'RE DONE, TOUCH ENTER.

GRAPHIC SCREEN OF RECIPE AT TOP WITH SPACES AND LABELS FOR PART A AND PART B QUESTIONS.

NARRATOR VO - 2ND AUDIO

How many gallons is that?

TEXT SCREEN:
HOW MANY GALLONS IS THAT?
TOUCH THE NUMBERS ON THE BAR TO
ANSWER. WHEN YOU'RE DONE, TOUCH ENTER.

GRAPHIC SCREEN OF RECIPE AT TOP WITH SPACES AND LABELS FOR PART A AND PART B QUESTIONS.

NARRATOR VO - 2ND AUDIO

How many ounces of steak sauce will Manny use?

TEXT SCREEN:
HOW MANY OUNCES OF STEAK SAUCE WILL MANNY USE?
REMEMBER, HE'S MAKING FOUR TIMES THE RECIPE. TOUCH THE NUMBERS ON THE BAR TO ANSWER. WHEN YOU'RE DONE, TOUCH ENTER.

GRAPHIC SCREEN OF RECIPE AT TOP WITH SPACES AND LABELS FOR PART A AND PART B QUESTIONS.

NARRATOR VO - 2ND AUDIO

How many cups is that?

TEXT SCREEN:
HOW MANY CUPS IS THAT?
TOUCH THE NUMBERS ON THE BAR TO ANSWER. WHEN YOU'RE DONE, TOUCH ENTER.

Capacity Measurement rev 3-25-88
Scene CM-3
Character 2, Manny
Kitchen

Manny is finishing the crab soup when Carol, the waitress, appears. Props: Recipe for chicken salad, order left by waitress for "2 chicken salads", bulletin board of recipes.

CAROL

Hey Manny, would you fix
two orders of chicken salad
to go? ~~They're~~ For John
Stevens? he wants to take
his girlfriend on a picnic.

CAROL

MANNY

For John? Sure, anything. Tell
him it'll be just a few
minutes.
[gets recipe from recipe box]
"Two Chicken Salad with
Pineapple." This recipe
makes eight servings, eh?
And I just need two.

Show the whole recipe but then zoom in on the title, showing this version of the recipe is enough to make 8 servings.
to horizontal split screen:

Chicken Salad with Pineapple
(8 servings)

4 cups diced pineapple

What should Manny do to the recipe
to make just two servings of salad?

Divide the amount of each ingredient by 4.

Divide the amount of each ingredient by 2.

Multiply the amount~~s~~ of each ingredient by 2.

Multiply the amount~~s~~ of each ingredient by 4.

Touch the BLUE DOT next to the correct answer.

CM3-2

NARRATOR V.O. (2nd audio)

CHANG deletion

What should Manny do ~~to the recipe~~
to make just two servings of salad?

(V.O. THESE RESPONSES)

Divide the amount of each ingredient by 4.
Divide the amount of each ingredient by 2.
Multiply the amounts of each ingredient by 2.
Multiply the amounts of each ingredient by 4.

Text screen of recipe, full screen size:
~~Chicken Salad with Pineapple~~
(8 servings)

4 cups diced pineapple
8 cups chicken
2 cups bean sprouts
1 cup chopped celery
Vinaigrette dressing

MANNY V.O. (2nd audio)
Okay, then, I need to divide each of these ingredients by four.

Screen splits horizontally and recipe moves to left. Graphic of recipe will remain for the next several questions:

~~How much pineapple~~ does Manny need?

(8 servings)	(2 servings)
4 cups pineapples	2 cups
8 cups chicken	1 cup
2 cups bean sprouts	1/2 cup
1 cup celery	1/4 cup

Touch the BLUE DOT next to the correct answer.

NARRATOR V.O. (2nd audio) CHANGE

How ~~much~~ many cups of chicken does Manny need? ~~Touch the BLUE DOT next to the correct answer.~~ NO CHANG

How many cups of bean sprouts does Manny need? ~~Touch the BLUE DOT next to the correct answer.~~ NO CHANG

How many cups of celery does Manny need? T~~ouch the BL~~UE DOT next ~~to the correct answer~~ NO CHANG.

rev 5/25/86

Capacity Measurement: Scene CM-4

GRAPHIC OF WORLD, SHOWING CONTINENTS, AT LEAST, AND MAYBE SOME FAMILIAR COUNTRIES.

NO CHANGE
JUST CLEAN
COPY

NARRATOR VO - 2ND AUDIO

Manny has been using the traditional system to measure capacity. The metric system is another measurement system you may have to work with. Answer this multiple choice question about metric capacity. Just touch the blue dot next to the correct answer.

What metric unit is about the same as a quart?

TEXT SCREEN:
WHAT METRIC UNIT IS ABOUT THE SAME AS A QUART?
● 1/2 LITER
● 1 LITER
● 2 LITERS
● 4 LITERS
TOUCH THE BLUE DOT NEXT TO THE CORRECT ANSWER.

REV 5/3/88cdh

Determining How Much You Have Using Traditional Weight Measurement
Scene WM - 1
Character 3, B.J.
Character 7, Mr. Jack Martin
In Warehouse, in area where goods are packaged for retail sale

B.J. is standing next to a workbench which contains two scales, a small table scale which goes up to 10 ounces and a larger hanging scale which is marked up to 10 pounds. There are some barrels of bulk goods lined up near the workbench and some smaller containers of bulk goods on metal shelving nearby. Some cardboard cartons also sit on the metal shelves. B.J. is engrossed in reading something that looks like an order form. Mr. Martin walks up to B.J. He is carrying several order forms.

MR. MARTIN

Good morning, B.J. I'm really glad you got here early today. We have alot of work to get done by this afternoon. (He sort of waves the order forms for emphasis here.)

Mr. Martin hands B.J. the first order form he is holding

MR. MARTIN

This is a telephone order that I got yesterday from the manager of our Newton store. She says she really needs to get her hands on some of that new gourmet popcorn. Her customers are buying it sooo fast she can't keep it in stock. Oh, she also needs some of those raisin candies. I told her we didn't have that much of either, but that I'd send her all we had.

B.J.

Oh, so you want me to weigh what we have and package it for shipment. (This is a statement to confirm understanding, not a question.)

MR. MARTIN

That's right, B.J. You're on the ball as usual. I need to check the loading dock now, but I'll be back in a few minutes.

Mr. Martin walks out.

B.J.
Okay, popcorn.

B.J. walks over to the area where the popcorn barrel (bin) is located and lifts out the clear plastic bag (liner) that contains the popcorn. She places the bag on the workbench between the scales.

IN ONE SHOT SHOULD BE ABLE TO SEE THE POPCORN BARREL, THE WORKBENCH, THE PACKAGING MATERIALS, AND THE TWO SCALES.

B.J. looks at the bag of popcorn.

CAMERA SHOT OF POPCORN FROM B.J.'S POINT OF VIEW.

B.J.
(Looking at both scales)
Hmm. I wonder which of these
scales I should use to weigh
all of this popcorn.

GO TO 3 PART SCREEN WITH A STILL OF EACH OF THE TWO SCALES IN TWO OF THE BLOCKS AND THE POPCORN IN THE OTHER. (These shots need to maintain the relative sizes of the scales and popcorn barrel. Possibly this screen arrangement will be different depending on the shots that worked best, but there will be stills of some sort.)

NARRATOR VO - 1ST AUDIO
Which scale should B.J. use
to weigh all the popcorn for
shipping?
Touch the blue dot next to the
correct answer.

NO CHANGE

==

TEXT: WHICH SCALE SHOULD B.J. USE TO WEIGH ALL THE POPCORN FOR SHIPPING?

o SCALE IMAGE   POPCORN   o SCALE IMAGE

TEXT: TOUCH THE BLUE DOT NEXT TO THE CORRECT ANSWER.

==

NARRATOR VO - 1ST AUDIO
B.J. decided to use the larger scale.

NO CHANGE

B.J. is standing next to the workbench and has put the last measuring scoop of popcorn onto the scale.

B.J.

There, I'm done.

GO TO CLOSEUP OF THE APPROPRIATE SCALE AND PARTICULARLY ITS DIAL. THE APPROPRIATE SCALE IS THE LARGER ONE. IT REGISTERS 5 POUNDS AND 4 OUNCES.

VERTICAL SPLIT SCREEN, WITH STILL OF SCALE ON LEFT AND TEXT SCREEN ON RIGHT.

NARRATOR VO - 1ST AUDIO

How much does the popcorn weigh? Touch the numbers on the bar to answer. The cursor will move automatically from pounds to ounces. When you're done, touch Enter.

NO CHANGE

==

STILL IMAGE OF SCALE DIAL	TEXT: HOW MUCH DOES THE POPCORN WEIGH? (RESPONSE WINDOW) POUNDS AND (RESPONSE WINDOW) OUNCES TOUCH THE NUMBERS ON THE BAR TO ANSWER. THE CURSOR WILL MOVE AUTOMATICALLY FROM POUNDS TO OUNCES. WHEN YOU'RE DONE, TOUCH ENTER.

==

Return to a shot of B.J. just tying off the bag in which the popcorn will be shipped. She puts it down on the workbench and enters the weight of the popcorn on the order form. (We don't actually see the entry on the form.)

She moves away from the larger scale that she has been using.

B.J.

One down, one to go.
I bet I can weigh this candy
on that small scale there.

B.J. motions in the direction of the small scale pushed up against the back of the workbench.

B.J. pulls the little scale closer to the front of the workbench and sets the bulk candy container next to it. She starts to put the candy onto the scale. By the time she is about 3/5 of the way through she sees that the scale is almost up to its capacity of 10 ounces.

B.J.
I think I just lost my bet.
There's alot more of this than
I thought there was.

The camera stays on the scale face and on B.J.'s hand putting candy into the scale's container. When the scale hits capacity B.J. picks up the container, dumps the candy out into the shipping bag, and begins to repeat the process. She puts the remaining candy in the weighing container, and this time it does not quite reach the scale's capacity. (Actually it goes up to 8 ounces.

GO TO CLOSEUP OF SECOND WEIGH. This should be in the center of the screen so that next screen can be "overlayed" with little or no movement of the image.

GO TO 3 PART SPLIT SCREEN WITH STILL OF FIRST WEIGH LEFTMOST, SECOND WEIGH TOWARD CENTER, AND TEXT SCREEN ON RIGHT.

NARRATOR VO - 1ST AUDIO
How many ounces of candy are there
altogether?
Touch the numbers on the bar to
answer.
When you're done, touch enter.

NO CHANGE

STILL IMAGE OF FIRST WEIGH	STILL IMAGE OF SECOND WEIGH	TEXT SCREEN: HOW MANY OUNCES OF CANDY ARE THERE ALTOGETHER? (RESPONSE WINDOW) OUNCES

TOUCH THE NUMBERS ON THE BAR TO ANSWER. WHEN YOU'RE DONE, TOUCH ENTER.

TEXT SCREEN COMES UP WHICH SHOWS STUDENTS RESPONSE TO LAST QUESTION, WHETHER IT IS RIGHT OR WRONG.

NARRATOR VO - 2ND AUDIO
How ~~many~~ much is that in pounds and ounces?
~~does it take to equal the~~
~~ounces of your last answer?~~
Touch the numbers on the bar
to answer. The cursor will
move automatically from pounds
to ounces.
When you're done, touch Enter.

CHANGE

✓

TEXT SCREEN:
HOW ~~MANY~~ MUCH IS THAT IN POUNDS AND OUNCES? ~~DOES IT TAKE TO EQUAL (PREVIOUS~~
ANSWER) OUNCES. REMEMBER, YOU SAID THERE WERE ___ OUNCES.

(RESPONSE WINDOW) POUNDS

AND

(RESPONSE WINDOW) OUNCES

TOUCH THE NUMBERS ON THE BAR TO ANSWER. THE CURSOR WILL MOVE AUTOMATICALLY FROM POUNDS TO OUNCES. WHEN YOU'RE DONE, TOUCH ENTER.

CHANGE HERE TO EN OF NEXT PAGE

NARRATOR VO (2ND AUDIO)
To give the answer to the last problem, you needed to know how many ounces are in a pound. ~~Knowing how the different units of measurement relate to each other is an important part of measuring. Answer the following questions about weight measurement. They are multiple choice. Just touch the blue dot next to the correct answer.~~

We measure smaller amounts in ounces & pounds. Sometimes we measure larger amounts in Tons. How many pounds are in one ton?

TEXT SCREEN (WITH GRAPHICS):
WEIGHT MEASUREMENT EQUIVALENTS

DELETE

~~NARRATOR VO - 2ND AUDIO~~
~~How many ounces are there in one pound?~~

~~TEXT SCREEN:~~
~~HOW MANY OUNCES ARE THERE IN 1 POUND?~~

~~○ 32 OUNCES~~
~~○ 16 OUNCES~~
~~○ 10 OUNCES~~
~~○ 8 OUNCES~~

~~TOUCH THE BLUE DOT NEXT TO THE CORRECT ANSWER.~~

~~NARRATOR VO - 2ND AUDIO~~
~~How many pounds are there in one ton?~~

move to previous page
& incorporate with beginning
statements

TEXT SCREEN:
HOW MANY POUNDS ARE THERE IN 1 TON?

○ 100 POUNDS
○ 1000 POUNDS
○ 2000 POUNDS
○ 50 POUNDS

TOUCH THE BLUE DOT NEXT TO THE CORRECT ANSWER.

---

epr/4/28/88

PROP LIST FOR WM-1:
Same as for WM-2

Measuring Out a Specified Quantity Using Traditional Weight Measurement
Scene WM - 2
Character 3, B.J.
Character 7, Mr. Jack Martin
In Warehouse, in area where goods are packaged for retail
sale (same as in WM - 1)

B.J. is tying off the bag in which the candy is to be shipped. Mr. Martin walks into the area with more order forms in his hand. These order forms are complete.

MR. MARTIN
I'm glad you're so quick. Here's another order that needs to be filled. (He hands this form to B.J. This one is for a hundred bags of each size of our special trail mix. So we need three hundred bags altogether. And we really have to get them out this afternoon.

B.J.
No problem, Mr. Martin. I'm sure I can get it done.

MR. MARTIN
I'm sure you can too. Oh, when you're finished, come see me

Mr. Martin walks out of the area. B.J. looks at the order form.

B.J.
Well, it says they want one hundred four ounce bags, one hundred eight ounce, and one hundred sixteen ounce. Which of these scales should I use to weigh all of these?

GO TO 2 PART SCREEN WITH A STILL OF EACH OF THE TWO SCALES IN THE SECTIONS.

NARRATOR VO - 1ST AUDIO
If she only uses one scale, which scale should B.J. use to weigh all the sizes of trailmix?

NO CHANGE

==

TEXT: IF SHE ONLY USES ONE SCALE, WHICH SCALE SHOULD B.J. USE TO WEIGH ALL THE SIZES OF TRAILMIX?

○	STILL IMAGE OF SMALLER SCALE	○	STILL IMAGE OF LARGER SCALE

TOUCH THE BLUE DOT NEXT TO THE CORRECT ANSWER.

==

B.J.

I think I'll use this one.
I'll start with the one pound size first.

B.J. selects the larger sized (hanging) scale.
B.J. puts an amount of trail mix on the scale and then looks at the dial. (The dial should register 12 ounces)

GO TO CLOSEUP OF SCALE.

VERTICAL SPLIT SCREEN WITH STILL OF SCALE ON LEFT AND TEXT SCREEN ON RIGHT.

NARRATOR VO - 1ST AUDIO

NO CHANGE

How many more ounces of trail mix does B.J. need to equal one pound?

==

STILL IMAGE OF LARGER SCALE REGISTERING 12 OUNCES	TEXT : HOW MANY MORE OUNCES OF TRAIL MIX DOES B.J.NEED TO EQUAL ONE POUND? (RESPONSE WINDOW HERE)

TOUCH THE NUMBERS ON THE BAR TO ANSWER. WHEN YOU'RE DONE, TOUCH ENTER.

==

B.J. adds some more trail mix (4 ounces to be precise) to the scale container a little bit at a time.

GO TO CLOSEUP OF SCALE.

VERTICAL SPLIT SCREEN WITH FACE OF SCALE ON LEFT AND TEXT SCREEN ON RIGHT.

NARRATOR VO 1st AUDIO
Should B.J. add any more trail mix? Touch the blue dot next to your answer.

NO CHANGE

==

STILL IMAGE OF
FACE OF SCALE
REGISTERING 1
POUND

TEXT:
SHOULD B.J. ADD ANY MORE TRAIL MIX?

○ YES ○ NO

TOUCH THE BLUE DOT NEXT TO YOUR ANSWER.

==

B.J. is standing by the workbench with extra who is in process of removing the scale from its hanger.
Most of the one pound bags have been weighed and put into shipping cartons which have been sealed; none of the medium or small have yet been weighed.

B.J.
HAS CONVERSATION WITH EXTRA HERE.
EXTRA NEEDS IT FOR A SPECIAL JOB
FOR MR. MARTIN.

MIDRANGE SHOT OF B.J. AND SMALLER SCALE (which has a maximum capacity of only 10 ounces).

B.J.'s finger points toward the dial as she inspects it.

B.J.
It's going to be harder to measure these one pound bags on this smaller scale. This scale only goes up to 10 ounces. (She says this in a complaining voice, not a surprised voice.)

VIDEO STILL OF SMALLER SCALE

NARRATOR VO - 1ST AUDIO
Because B.J. must use the smaller scale, she'll need to measure each pound in two parts.

NO CHANGE

NARRATOR VO - 2ND AUDIO
Which of these combinations could
B.J. use to weigh one pound on this
10 ounce scale?

NO CHANGE

TEXT SCREEN:
WHICH OF THESE COMBINATIONS COULD B.J. USE TO WEIGH 1 POUND
ON THIS 10 OUNCE SCALE?

o 5 OUNCES AND 8 OUNCES
o 8 OUNCES AND 7 OUNCES
o 11 OUNCES AND 5 OUNCES
o 10 OUNCES AND 6 OUNCES

TOUCH THE BLUE DOT NEXT TO THE CORRECT ANSWER.

NARRATOR VO - 2ND AUDIO
Give a different combination that
B.J. could use to weigh one pound
on this 10 ounce scale.
Touch the numbers on the bar to
answer. The cursor will move
automatically. When you're done,
touch Enter.

NO CHANGE

TEXT SCREEN:
GIVE A DIFFERENT COMBINATION THAT B.J. COULD USE TO WEIGH 1 POUNI
ON THIS 10 OUNCE SCALE.

FIRST WEIGH (REPONSE WINDOW) OUNCES

THEN WEIGH (RESPONSE WINDOW) OUNCES

TOUCH THE NUMBERS ON THE BAR TO ANSWER. THE CURSOR WILL MOVE
AUTOMATICALLY. WHEN YOU'RE DONE, TOUCH ENTER.

B.J. is standing by the workbench and weighing out the last of the bags (the small size to indicate that she has finished the large and medium ones and is about to finish the job.) There are cardboard boxes full of the trail mix that have been placed on a large flatbed cart.

B.J. puts the last of the boxes on the cart. She picks up the order form and lays it on the cart on top of the boxes. She puts her hands on the handle.

Extra walks in carrying the scale that she borrowed.

EXTRA
Thanks. How's it going?....
....

B.J.
I'm done. I just have to take these to the loading dock and then go see Mr. Martin.

B.J. starts to push the cart out of the area.

NARRATOR VO - 2ND AUDIO
B.J. has been using the traditional system to measure weight in pounds and ounces. The metric system is another measurement system that you may have to work with. Answer this multiple choice question about metric weight. Just touch the blue dot next to the correct answer.

NO CHANGE

==

TEXT SCREEN (WITH GRAPHICS):
WEIGHT MEASUREMENT IN THE METRIC SYSTEM

==

NARRATOR VO - 2ND AUDIO
About how many pounds ~~is~~ equal ~~to~~ one kilogram?

CHANGE

==

TEXT SCREEN:
ABOUT HOW MANY POUNDS IS EQUAL TO 1 KILOGRAM?

o 1 pound
o 2 pounds
o 5 pounds
o 10 pounds

TOUCH THE BLUE DOT NEXT TO THE CORRECT ANSWER.

==

epr/4/28/88

PROP LIST FOR WM - 2:
Workbench
2 scales - 10 ounce capacity
10 pound capacity

Cartons 5 bulk food barrels
Metal Shelving
Order forms - blank
Order form - with candy and popcorn entered, but without
  weights or cost
Order form - for 100 4 oz, 100 8 oz, and 100 1 lb bags of
  trailmix, completed
Loose Popcorn
Loose coated raisin candy
Pen
Pencil
Clear bags of various sizes
Twist or tape ties
Labels for bags of trailmix
Trailmix
Metal scoop(s)

REV 5/3/88cdh

Measuring Temperature Using the Fahrenheit Scale
Scene PM-1
Character 1, Tom
Character 5, Mr. Al Richmond
In Living Room of House

Tom and Mr. Richmond are standing in the center of the room. Tom is and wearing painters overalls and a painter's hat. Also present in the room are 2 buckets of paint (1 interior, 1 exterior) and various painting supplies including a drop cloth, spread on the floor, and a step ladder.

MR. RICHMOND
Get started as soon as possible.
I'd really like to finish painting
this room this morning, so we can
start painting outside this afternoon.
I have to go over to the other job now.
Be back in a couple of hours.

TOM
Okay. See you later, Mr. Richmond.

Tom turns the paint can around to read the directions.

TOM
Oh, look at this. (Points to label
and reads.)
"Do not use at temperatures below
50 degrees or above 90 degrees
fahrenheit." Hmm... I wonder what the
temperature is in here.

Tom walks out of the room to look at thermostat in next room.

GO TO CLOSEUP OF THE THERMOSTAT which reads 73 F.

HORIZONTAL SPLIT SCREEN WITH THERMOSTAT (OR GRAPHIC OF IT) ON TOP AND TEXT SCREEN ON BOTTOM.

NARRATOR VO - 1ST AUDIO? NO CHANGE
What is the temperature in the
house where Tom is working?
Touch the numbers on the bar to
answer. When you're done, touch
Enter.

==

IMAGE OF THERMOSTAT DIAL (PROBABLY STILL,
BUT POSSIBLY GRAPHIC)

TEXT:
WHAT IS THE TEMPERATURE IN THE HOUSE WHERE TOM IS WORKING?

(RESPONSE WINDOW HERE)

TOUCH THE NUMBERS ON THE BAR TO ANSWER. WHEN YOU'RE DONE, TOUCH ENTER.

==

TOM
Well, the temperature's okay.
I'll get started right away.

Tom walks over to the ladder where the portable radio is sitting.

TOM
Let's get some tunes. (As he pushes
a button on the radio)

RADIO (ACTUALLY VO)
(Music playing) It's going to be
a hot one today, folks. If you
think it's hot now, brace yourselves.
By noon, it's going to be at least
10 degrees hotter.

Music starts to play again more quietly.

TOM
I'd better check the outdoor paint
too.

Tom picks up the can of exterior paint and turns it around to read the directions.

TOM
I can't paint with this when it's
over 90 degrees either. I'll check
that thermometer outside.

Tom walks to sliding glass door to look out at glass tube thermometer which is mounted on outside of doorframe. The thermometer reads 77 degrees F.

GO TO CLOSEUP OF THERMOMETER.

VERTICAL SPLIT SCREEN WITH STILL OF THERMOMETER ON LEFT AND TEXT SCREEN ON RIGHT.

NARRATOR VO - 1ST AUDIO NO CHANGE
What is the temperature outside now?

STILL IMAGE OF
GLASS TUBE
THERMOMETER

TEXT:
WHAT IS THE TEMPERATURE
OUTSIDE NOW?

(RESPONSE WINDOW HERE)

TOUCH THE NUMBERS ON THE BAR TO ANSWER. WHEN YOU'RE DONE, TOUCH ENTER.

FOLLOWING STUDENT RESPONSE, THE SAME SPLIT SCREEN STAYS, ALONG WITH THE STUDENT'S ANSWER, BUT DIRECTIONS ARE CHANGED AN TEXT ADDED AS FOLLOWS.

NARRATOR VO (1ST AUDIO)
Is this the answer you want. Touch
the blue dot next to your answer.

NO CHANGE

STILL OF GLASS
TUBE THERMOMETER

TEXT:
WHAT IS THE TEMPERATURE
OUTSIDE NOW?

(STUDENT RESPONSE)

IS THIS THE ANSWER YOU WANT?

○ YES ○ NO

TOUCH THE BLUE DOT NEXT TO YOUR ANSWER.

NARRATOR VO - 2ND AUDIO
What will the temperature be if
it goes up ten degrees?

NO CHANGE

TEXT SCREEN:
WHAT WILL THE TEMPERATURE BE IF IT GOES UP 10 DEGREES?

REMEMBER, YOU SAID THAT IT WAS ALREADY (STUDENT RESPONSE) DEGREES OUTSIDE.

(RESPONSE WINDOW HERE)

TOUCH THE NUMBERS ON THE BAR TO ANSWER. WHEN YOU'RE DONE, TOUCH ENTER

NARRATOR VO - 2ND AUDIO
Will Tom be able to ~~continue~~
paint~~ing~~ outside if the temperature goes
up ten degrees?

CHANGE

==

TEXT SCREEN:
WILL TOM BE ABLE TO CONTINUE PAINTING IF THE TEMPERATURE GOES UP 10 DEGREES?

o YES o NO

TOUCH THE BLUE DOT NEXT TO YOUR ANSWER.

==

TOM
Well, it'll be cutting it close,
but I'll probably be able to paint
outside when I'm done in here.

TEXT AND GRAPHIC SCREEN APPEARS.

NARRATOR VO - 2ND AUDIO
Tom has been working with
thermometers that measure
temperature in "degrees
fahrenheit". Other thermometers
are sometimes used ~~which~~ that measure
temperature in "degrees Celsius."
Answer the following questions about
these two temperature scales.
They are multiple choice. Just
touch the blue dot next to the
correct answer.

CHANGE

==

TEMPERATURE CAN BE MEASURED IN DEGREES
FAHRENHEIT OR IN DEGREES CELSIUS.

SOME SORT OF GRAPHIC OF THERMOMETER OR
SOMETHING HERE TOO.

==

NARRATOR VO - 2ND AUDIO
At what temperature does water freeze?

NO CHANGE

TEXT SCREEN:
AT WHAT TEMPERATURE DOES WATER FREEZE?

o 0 FAHRENHEIT
o 32 CELSIUS
o 32 FAHRENHEIT
o 212 FAHRENHEIT

TOUCH THE BLUE DOT NEXT TO THE CORRECT ANSWER.

NARRATOR VO - 2ND AUDIO
What Celsius temperature is the
same as thirty-two degrees Fahrenheit?

NO CHANGE

TEXT SCREEN:
WHAT CELSIUS TEMPERATURE IS THE SAME AS 32 DEGREES FAHRENHEIT?

o 0 CELSIUS
o 32 CELSIUS
o 100 CELSIUS
o 212 CELSIUS

TOUCH THE BLUE DOT NEXT TO THE CORRECT ANSWER.

NARRATOR VO - 2ND AUDIO
What Celsius temperature is the same
as 212 degrees Fahrenheit?

NO CHANGE

TEXT SCREEN:
WHAT CELSIUS TEMPERATURE IS THE SAME AS 212 DEGREES FAHRENHEIT?

o 0 CELSIUS
o 100 CELSIUS
o 32 CELSIUS
o 212 CELSIUS

TOUCH THE BLUE DOT NEXT TO THE CORRECT ANSWER.

NARRATOR VO - 2ND AUDIO
What happens at one hundred degrees
Celsius?

NO CHANGE

```
=================================================================
TEXT SCREEN:
WHAT HAPPENS AT 100 DEGREES CELSIUS?
                  o    WATER FREEZES
                  o    WATER BOILS
                  o    PEOPLE GO SWIMMING
                  o    PEOPLE GO ICESKATING

TOUCH THE BLUE DOT NEXT TO THE CORRECT ANSWER
=================================================================
```

epr/4/28/88

PROP LIST FOR PM - 1
Painter's overalls
2 Buckets of Paint
  1 Interior
  1 Exterior
Ladder
Large Paintbrush
Portable Radio
Glass Tube Thermometer
Painter's hat
Thermostat
Glass tube thermometer
Dropcloth

Telling Time   rev 5-3-88cdh
Scene TM-1
Character 2. Manny
C6. Mrs. Young
Kitchen

Manny is washing bowls and utensils at the sink when Mrs. Young rushes in. She's carrying a brown paper sack, from which she takes a bottle of vanilla and puts it up in the cupboard. Manny is wearing an analog watch. Mrs. Young and Manny have a fast-paced dialogue.

MRS. YOUNG

[indicating vanilla]
This vanilla should hold us over for today.

MANNY

[confirmatory tone] Oh, great.

(Mrs. Young tries to check her watch but notices she's forgotten to put it on.)

Oh, shoot! I forgot my watch. And today of all days when I've got appointments all over town. What time _is_ it?

MANNY

Not to worry, Mrs. Young. I've got my watch on.

Close-up on Manny's arm, showing his analog watch, and then zooming in on the face of the watch, which indicates the time is 10:35. Close-up retreats to top half of vertical split screen and text appears on the bottom of the screen:

What time is it?

7:50
10:07
10:25
10:36

Touch the BLUE DOT next to the correct answer.

NARRATOR V.O. (~~2nd~~ 1st audio)

CHANGE IN TRACK

What time is it?
Touch the BLUE DOT next to
the correct answer.

Telling Time
Scene TM-2
Character 2. Manny
Kitchen

Manny returns from running an errand. He takes his jacket off and notices a note for him on the refrigerator.
We need a digital clock radio that blinks 12:00 when plugged in, his analog watch from the previous scene. A note (text below) is magneted to the refrigerator.

MANNY
[reading aloud]
Manny --
Our new mixer is arriving
this afternoon. Please clear
a space for it. See you soon.
Mrs. Young

Manny looks around and spots the space where the radio is. He unplugs the radio and looks around for a place for it. He spots a window sill (or someplace equally convenient), and plugs it back in.

MANNY
This looks like the best place for it.

Close-up of clock blinking "12:00" when he plugs it back in.

MANNY
Let's see now.

[He glances at his watch.]

Screen:

For what time should Manny
set the clock?

Touch the NUMBERS ON THE BAR to
answer. When you're done, touch ENTER.

[Close-up of analog watch showing the time is 11:12 ~~[illegible]~~. Close-up retreats to top half of screen. Video of clock radio on the bottom half has place for student to enter answer in (can be graphic if there is a problem doing this).]

CHANGE IN TRACK

NARRATOR V.O. (1st ~~2nd~~ audio)

CHANGE IN TEXT

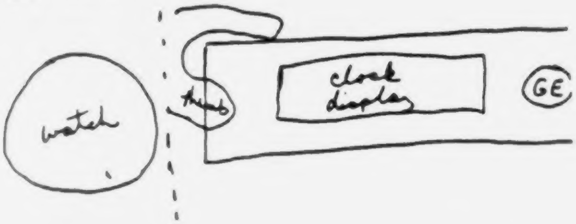
For what time should Manny set the clock? Touch the boxes ~~NUMBERS~~ ON THE CLOCK TO SET THE TIME. ~~to answer~~. When you're done, touch ENTER.

EACH TOUCH WILL CHANGE THE NUMBER IN A BOX.

te: seems like student should ALWAYS touch enter to move from hours to minutes, since only if above 10 hours it moves automatically? what thinkest thou?

09 20 22-34

08 05 22-..



approximate arrangement

For what time should Manny set the clock?

Touch the boxes on the clock to set the time. Each touch will change the number in a box. When you're done, touch enter.

Scheduling Time
Scene TM-3
Character 2, Manny
C6, Mrs. Young
Kitchen

Mrs. Young and Manny are working. Mrs. Young, wiping her hands on a dishtowel, approaches Manny. Props include a piece of paper (perhaps on a pad), and a pencil.

MRS. YOUNG
Manny, I want you to make some of your fruit salad for today's buffet? We've had a lot of compliments on it.

MANNY
Do you want me to make the cakes, too, Mrs. Young?

MRS. YOUNG
Well, yes, Manny. We have to have your cakes.

MANNY
[He reaches for a pencil and scrap of paper to use to figure his time.]
Let me just figure out how long it will take to make both.

It's thirty-five minutes for the fruit salad, with all the peeling and slicing and stuff. And, the cake takes thirty minutes to mix, fifty-five minutes to bake, thirty to cool and about ten to frost. Let's see.

Screen:
Graphic of the numbers he's jotted down on left half of vertical split screen:

35
30
55
30
10

35
30
55
30
10

____ minutes

NARRATOR V.O. (2nd audio) CHANGE

~~How much time,~~ in minutes
will it ~~take Manny to make~~
~~the salad and cakes?~~ Work this problem.

Screen:
Student's response (_____ minutes) moves from the right of the screen to the left.

Text screen:

How much time in HOURS AND MINUTES will it take Manny to make the salad and cakes?

_____ minutes _____ hours _____ minutes

Touch the NUMBERS ON THE BAR to answer.
The cursor will move automatically from hours to minutes. When you're done, touch ENTER.

NARRATOR V.O. (2nd audio) CHANGE

How long is that ~~much time~~ in hours
and minutes? ~~will it take Manny~~
~~to make the salad and cakes?~~ Touch the NUMBERS ON THE BAR to answer. The cursor will move automatically from hours to minutes. When you're done, touch ENTER.

Scheduling Time
Scene TM-4
Character 2, Manny
C6, Mrs. Young
Location: Kitchen

Shot of Manny, standing peeling apples. A bowl of peeled apples is on one side and a bowl of unpeeled apples on the other.

Mrs. Young approaches.

MRS. YOUNG
I hate to rush you, Manny,
but when will you be done?
I've got some other things
for you to do.

Manny glances at his watch.

MANNY
I'm about half-way done
now, Mrs. Young and it's
taken me twenty minutes.

Text screen:
How many minutes will it take
Manny to peel all the fruit?
Remember, peeling half the
fruit has taken 20 minutes.

[ ] minutes

Touch the NUMBERS ON THE BAR to answer. When you're done, touch ENTER.

ADDITION

[redacted]

NARRATOR V.O. (2nd audio)
How many minutes will it take
Manny to peel all the fruit?
Remember, peeling half the fruit
has taken twenty minutes.

Scheduling Time
Scene TM-5
Character 2, Manny
C6, Mrs. Young
Kitchen

Manny is at work making mini-pizzas. In from of him is a cutting board, a knife and a jar of olives. Some doughy-looking substance and some tomato-sauce looking substance, perhaps some other, assorted toppings, should be visible.

MANNY
I'm making some terrific
little pizzas for
appetizers, Mrs. Young,
five different kinds.

MRS. YOUNG
Do you have time, Manny, to
make so many kinds?

MANNY
Oh, sure. Each topping takes
only about ten minutes to
make. I'm just finishing
the first one now, olive.
They'll be great!!

Full text screen:

How many minutes will it take
Manny to make all 5 kinds of
pizza? Remember, each kind
takes 10 minutes.

[ ] minutes

Touch the NUMBERS ON THE BAR to answer.
When you're done, touch ENTER.

NARRATOR V.O. (2nd audio)
How many minutes will it take
Manny to make all five kinds of
pizza?
Remember, each kind takes ten
minutes.

ADDITION

Elapsed Time
Scene TM-6
Character 2, Manny
C6, Mrs. Young
Location: Kitchen

Mrs. Young and Manny are working in the kitchen. Manny is stirring a pot on the stove, tastes his creation, and shares his enjoyment with Mrs. Young.

MANNY

[to himself] Mmmmm. It's done. Mrs. Y, try this new stew I made. [hands her a spoon and she tastes it.]

MRS. YOUNG

Manuel, you are a genius!

MANNY

I'm going to call it "Fiesta de Manuel." [smiles, pleased with himself. And I remembered to keep track of my time, to figure out how long it takes to make. I started at eleven-fifty and now it's [glances at watch] 1:20.

Split graphics screen, pictures of clocks on top:

START TIME:	STOP TIME:
(11:10)	(1:20)

How long did it take Manny to make the soup?

______ hours and _____ minutes

Touch the NUMBERS ON THE BAR to answer. The cursor will move automatically from hours to minutes. When you're done, touch ENTER.

NARRATOR V.O. (2nd audio)

How long did it take Manny to make the soup? Touch the NUMBERS ON THE BAR to answer. The cursor will move automatically from hours to minutes. When you're done, touch ENTER.

NO CHANGE

Elapsed Time
Scene TM-7
Character 2, Manny
C6, Mrs. Young
Location: Kitchen

There's a pot of soup on the stove and Manny is at the sink, washing bowls and utensils. Mrs. Young is checking on what's in the oven. She closes the oven door and pushes back her hair with her forearm, picks up a tray, wipes it off with her hand, puts the tray down on the counter, and in the process of doing so, knocks a kitchen timer onto the floor.

MRS. YOUNG

[to herself, at first]

Darn, another timer. That's my third.

[pauses, then shakes her head, deciding that she can't do anything about it now]

I've got to run. [raises her voice] Manny, I put this roast in at ten-thirty and it needed to cook for three hours and fifteen minutes. Will you take it out when it's time? I've got to get out of here.

[She heads toward the door.]

MANNY

Sure Mrs. Young. See you later.

[Exit Mrs. Young.]

MANNY

[to himself]

But the timer's broken --oh, I know, I'll set the alarm on the radio.

Ten thirty plus three hours and fifteen minutes. MANNY VO 1st

Text screen: Mrs. Young put the roast in at 10:30.
It needs 3 hours and 15 minutes to cook.
What does Manny need to do to find out
what time the roast will finish?

10:30 +   10:30 +   10.30   10.30
+ 3:15   - 3:15   + 3.15   - 3.15

Touch the BLUE DOT next to the correct answer.

NARRATOR V.O. (2nd audio)

$\boxed{2}$ Remember, Mrs. Young put the roast in at ten thirty. It needs three hours and fifteen minutes to cook. $\boxed{1}$ What ~~does~~ should Manny ~~need to~~ do to find out what time the roast will ~~finish?~~ be done? $\boxed{2}$

CHANGE (start with questi
$\boxed{1}$ then $\boxed{2}$

~~Graphics~~ screen: Procedure student has chosen remains on the screen while the others disappear. The question changes and a place for the student's next answer appears.

TEXT:
For what time should Manny set the alarm?

Remember, the roast went in at 10:30 and it needs to cook 3 hours and 15 minutes.

Touch the numbers on the bar to answer.
When you're done, touch enter.

NARRATOR V.O. (~~2nd~~ 1st audio)
For what time should Manny set the alarm?
Touch the boxes on the clock radio to set the alarm. Each touch will change the number in a box. When you're done, touch enter.

CHANGE IN TRACK
ADDITION OF TEXT

over edited video still of clock radio from 09 05 23-28 in top 1/3 of screen

Text screen:

Suppose Manny put a ham in the
oven at 2:30 and it needed
to cook for 2 hours and 45 minutes.
At what time would the ham be done?

2.30 +	1:30 +	1:50 +
2.45	1:45	1:75
------	-----	------

Touch the numbers on the bar to answer.
When you're done, touch enter.

?, multiple choice or direct entry

repeat NARRATOR V.O. (~~2nd~~ 1st audio)
At what time would the ham be done?

Touch the boxes on the clock radio to set the time. ~~Each touch will change the number in a box. When you're done, touch enter~~.

CHANGE IN TRACK
(Tom recorded whole thing as should be)
ADDITION TO TEXT

Elapsed Time
Scene TM-8
Character 2. Manny
C6. Mrs. Young
Location: Kitchen

Mrs. Young and Manny are working together in the kitchen. Mrs. Young, holding a recipe for a marinated dish in one hand, approaches Manny.

MRS. YOUNG
Schedule this [hands it to him] so that Sam can take it out of the oven at eight o'clock promptly, Manny. Tonight is the Rosenberg's anniversary, and this is one of their favorites.

MANNY
Sure, Mrs. Young. [takes recipe and Mrs. Young exits] Oh, it's one of these fancy marinated dishes.

Shot of Manny holding the recipe, reading from it.

MANNY
Let's see, it's three hours marinating and two hours cooking.

Text screen (on top)

[redacted]

A+ What time should Manny begin marinating the dish? Remember, it takes 3 hours to marinate, 2 hours to cook, and it must be ready ~~should be done~~ at 8:00 pm. ~~What time should Manny begin marinating the dish?~~

__:__

Touch the NUMBERS ON THE BAR to answer. When you're done, touch ENTER.

NARRATOR V.O. (2nd audio)
A+ What time should Manny begin marinating the dish?

CHANGE
(addition)

rev 5/3/88

Money Values: Reading Money Values, Counting Money, and Money Equivalencies
Scene MV-1
Character 4, Nikki
Character 8, customer, Ms. Jesse Houston
Small gallery/frame shop

Ms. Houston and Nikki at counter (same as in LM - has a metal yardstick attached along edge, a 12-inch ruler, a metal tape measure, a yardstick, an order pad, a sales pad, stickers for writing prices, various pens and pencils, roll of double-sided tape, spool of wire, and a cash box). Measured wire (from LMT) laying on counter - coiled with hand-written price tag on it. Nikki is putting a price tag on the coiled tape.

NIKKI
All right. (lays tape down next to wire) Is there anything else, Ms. Houston?

MS. HOUSTON
(pushes package of eye screws, hanger, and box of hooks toward Nikki and the two measured items) This should be everything I need, Nikki.

Nikki picks up sales pad and pen; looks at items as speaks

NIKKI
O-o-kay. (first syllable stretched just a little)

Nikki touches first item - tape, 40¢

CU OF PRICE TAG TO STILL

GRAPHIC/TEXT SCREEN WITH TAPE AND PRICE TAG ON LEFT, TEXT ON RIGHT, AND CHOICES AT BOTTOM - 40¢

NARRATOR VO - 2ND AUDIO

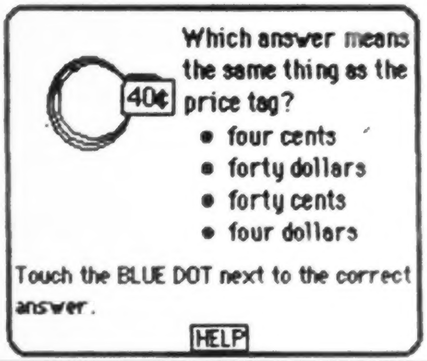
Which answer means the same thing as the price tag? Touch the blue dot next to the correct answer.

TEXT:

WHICH ANSWER MEANS THE SAME THING AS THE PRICE TAG?

- FOUR CENTS
- FORTY DOLLARS
- FORTY CENTS
- FOUR DOLLARS

TOUCH THE BLUE DOT NEXT TO THE CORRECT ANSWER.



Which answer means the same thing as the price tag?

- four cents
- forty dollars
- forty cents
- four dollars

Touch the BLUE DOT next to the correct answer.

SAME SCREEN ARRANGEMENT; GRAPHIC ITEM CHANGES TO EYE SCREWS WITH PRICE TAG - 75¢

NARRATOR VO 2ND AUDIO

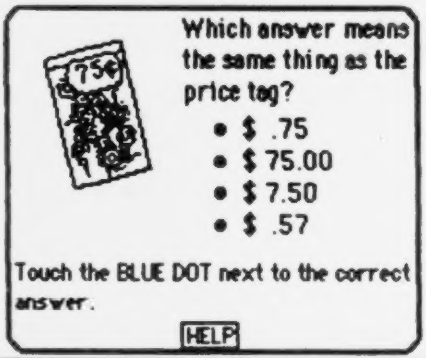
Which answer means the same thing as the price tag?.

TEXT:

WHICH ANSWER MEANS THE SAME THING AS THE PRICE TAG?

- ● $ .75
- ● $ 75.00
- ● $ 7.50
- ● $ .57

TOUCH THE BLUE DOT NEXT TO THE CORRECT ANSWER.



Which answer means the same thing as the price tag?

- ● $ .75
- ● $ 75.00
- ● $ 7.50
- ● $ .57

Touch the BLUE DOT next to the correct answer.

SAME SCREEN ARRANGEMENT; GRAPHIC ITEM CHANGES TO BOX OF HOOKS WITH PRICE TAG - $2.35

NARRATOR VO - 2ND AUDIO

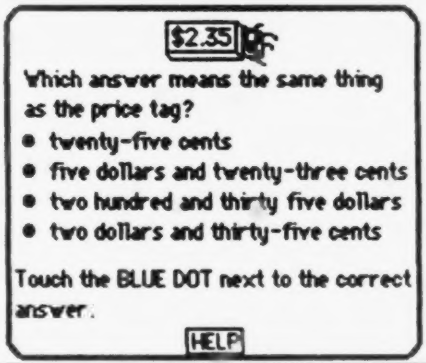
Which answer means the same thing as the price tag?

TEXT:

WHICH ANSWER MEANS THE SAME THING AS THE PRICE TAG?

- TWENTY-FIVE CENTS
- FIVE DOLLARS AND TWENTY-THREE CENTS
- TWO HUNDRED AND THIRTY-FIVE DOLLARS
- TWO DOLLARS AND THIRTY-FIVE CENTS

TOUCH THE BLUE DOT NEXT TO THE CORRECT ANSWER.



Which answer means the same thing as the price tag?

- twenty-five cents
- five dollars and twenty-three cents
- two hundred and thirty five dollars
- two dollars and thirty-five cents

Touch the BLUE DOT next to the correct answer.

VIDEO: Items and all five prices are written in on sales pad. Nikki is writing in total.

NIKKI

That's five dollars and eighty-eight cents. (tears off receipt and lays on counter)

Nikki starts bagging items as customer checks money

MS. HOUSTON
I have so much change, Nikki.
Okay if I use it?

NIKKI
Sure.

Customer counts coins inside purse or wallet and puts on counter as one mass - 2 ones, 9 quarters, 12 dimes, 6 nickels, 13 pennies

MS. HOUSTON
I think this is right, Nikki.

CU ON MONEY - MAYBE TO STILL

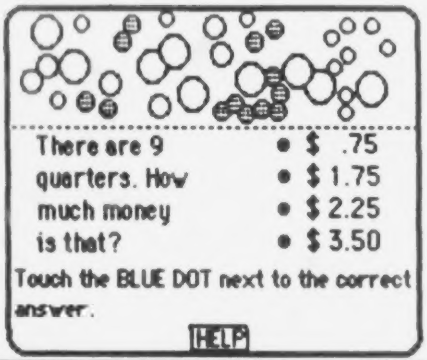
NARRATOR VO - 1st AUDIO NO CHANGE
You need to find out if Ms. Houston
gave Nikki enough money.

GRAPHIC OF RANDOM ARRANGEMENT OF COINS AT TOP, TEXT IN MIDDLE, AND CHOICES AT BOTTOM

NARRATOR VO - 2ND AUDIO
There are nine quarters. How much
money is that?

TEXT:
THERE ARE 9 QUARTERS. HOW
MUCH MONEY IS THAT?
- $ .75
- $ 1.75
- $ 2.25
- $ 3.50

TOUCH THE BLUE DOT NEXT TO
THE CORRECT ANSWER.



There are 9 quarters. How much money is that?

- ● $ .75
- ● $ 1.75
- ● $ 2.25
- ● $ 3.50

Touch the BLUE DOT next to the correct answer.

NARRATOR VO - 2ND AUDIO

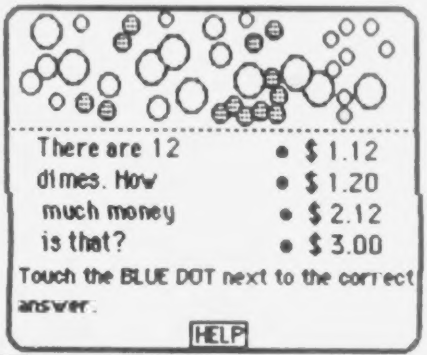
There are twelve dimes. How much money is that?

TEXT:

THERE ARE 12 DIMES. HOW MUCH MONEY IS THAT?

- ● $ 1.12
- ● $ 1.20
- ● $ 2.12
- ● $ 3.00

TOUCH THE BLUE DOT NEXT TO THE CORRECT ANSWER.



There are 12 dimes. How much money is that?

- ● $ 1.12
- ● $ 1.20
- ● $ 2.12
- ● $ 3.00

Touch the BLUE DOT next to the correct answer.

NARRATOR VO - 2ND AUDIO

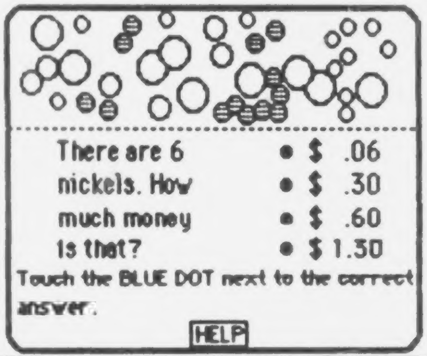
There are six nickels. How much money is that?

TEXT:

THERE ARE 6 NICKELS. HOW MUCH MONEY IS THAT?

- ● $ .06
- ● $ .30
- ● $ .60
- ● $ 1.30

TOUCH THE BLUE DOT NEXT TO THE CORRECT ANSWER.



There are 6	● $ .06
nickels. How	● $ .30
much money	● $ .60
is that?	● $ 1.30

Touch the BLUE DOT next to the correct answer.

VIDEO: CU STILL see Nikki's hand with pencil and paper on which she's written each amount and a line

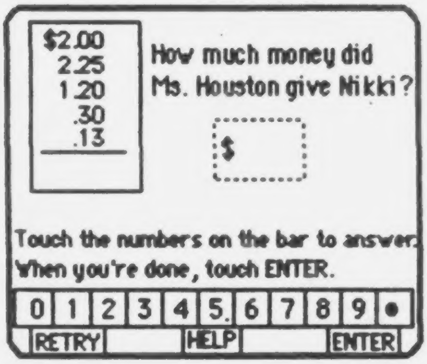
$ 2.00
2.25
1.20
.30
.13

OVERLAY QUESTION AND KEYPAD

NARRATOR VO 1st

How much money did Ms. Houston give Nikki? Touch the numbers on the bar to answer. When you're done, touch enter.

TEXT:
HOW MUCH MONEY DID MS. HOUSTON GIVE NIKKI? TOUCH THE NUMBERS ON THE BAR TO ANSWER. WHEN YOU'RE DONE, TOUCH ENTER.



$2.00
2.25
1.20
.30
.13

How much money did Ms. Houston give Nikki?

$

Touch the numbers on the bar to answer. When you're done, touch ENTER.

CU STILL OF RECEIPT; OVERLAY QUESTION AND RESPONSES

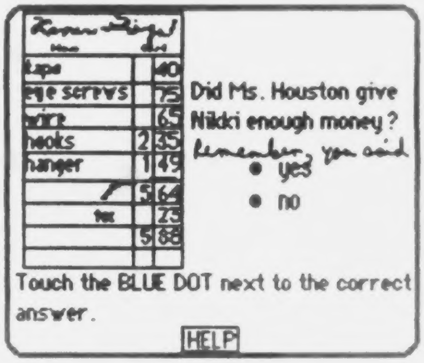
NARRATOR VO 1st

Did Ms. Houston give Nikki enough money?

TEXT:
DID MS. HOUSTON GIVE NIKKI ENOUGH MONEY? REMEMBER, YOU SAID MS. HOUSTON GAVE NIKKI ________

- YES
- NO

TOUCH THE BLUE DOT NEXT TO THE CORRECT ANSWER.



tape		40
ge screws		75
wire		65
hooks	2	35
hanger	1	49
	5	64
tax		23
	5	88

Did Ms. Houston give Nikki enough money?

Remember, you said

- yes
- no

Touch the BLUE DOT next to the correct answer.

VIDEO: Nikki is putting last of coins into cash box; closes box; picks up bag

NIKKI
Thanks, Ms. Houston. (hands bag to customer) We'll see you when your pictures are ready.

FADE

PROPS: add to LM-1&2

woman's wallet or coin purse with at least:
  2 one dollar bills
  9 quarters
  12 dimes
  6 nickels
  13 pennies

store bag for putting items into

rev 5/3/88

Money Values: Making Change and Money Equivalencies
Scene MV-2
Character 4, Nikki
Character 9, customer, Mr. Colby
Small gallery/frame shop

Nikki is working on something at counter (same as in LM - has a metal yardstick attached along edge, a 12-inch ruler, a metal tape measure, a yardstick, an order pad, a sales pad, stickers for writing prices, various pens and pencils, roll of double-sided tape, spool of wire, and a cash box). Mr. Colby enters in rush and seems preoccupied (he must have wallet in pocket).

NIKKI
(looks up) Hi, Mr. Colby. Are you ready for the big art show?

MR. COLBY
(heading toward display rack with packaged items) Almost, Nikki, but I have a million last minute things to do! (picks up package and waves toward Nikki) I ran out of picture hangers.

Mr. Colby walks to counter and lays package down. Nikki writes up sales receipt as Mr. Colby gets out $1 bill and lays it on counter.

NIKKI
Forty-seven cents, Mr. Colby. (picks up dollar bill) out of one dollar. (opens cash box)

TO STILL

GRAPHIC/TEXT SCREEN: RECEIPT WITH TOTAL VISIBLE (.47) AND DOLLAR BILL AT TOP, QUESTION UNDERNEATH, THEN DIRECTIONS ON BOTTOM LEFT, AND KEYPAD ON BOTTOM

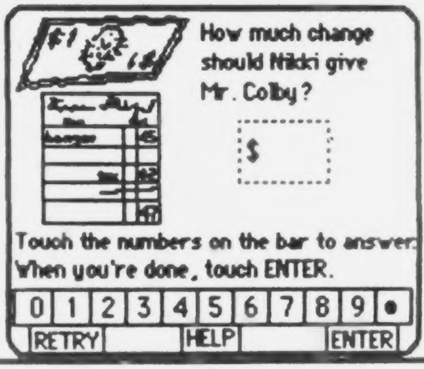
CHANGE IN TRACK
but Jon recorde
it over video as
should be.

NARRATOR VO - ~~2ND~~ 1st AUDIO

How much change should Nikki give Mr. Colby?

TEXT:

HOW MUCH CHANGE SHOULD NIKKI GIVE MR. COLBY? TOUCH THE NUMBERS ON THE BAR TO ANSWER. WHEN YOU'RE DONE, TOUCH ENTER.



How much change should Nikki give Mr. Colby?

$

Touch the numbers on the bar to answer. When you're done, touch ENTER.

GRAPHIC/TEXT SCREEN: RECEIPT WITH TOTAL VISIBLE (.47) AND DOLLAR BILL AT TOP, QUESTION UNDERNEATH, THEN DIRECTIONS; FOUR COINS ON BOTTOM LEFT AND WORKING SPACE ON BOTTOM RIGHT WITH RETRY BOX BOTTOM LEFT AND ENTER BOX BOTTOM RIGHT

CHANGE

NARRATOR VO - 2ND AUDIO

~~What are the fewest pieces of money Nikki should use to make the change?~~ Touch the pieces of money you want to use. You can use a piece of money more than once. ~~if you need to~~. When you're done, touch enter.

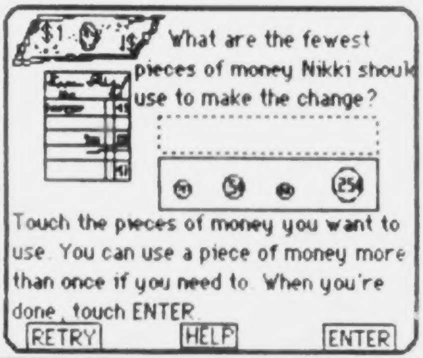
Nikki wants to use the fewest coins possible. Which coins should she use to make fifty-three cents in change?

corrected NARRATOR VO

Nikki wants to use the fewest coins possible. Which coins should she use to make fifty-three cents in change? Touch the pieces of money you want to use. You can use a piece of money more than once. When you're done, touch enter.

TEXT:

NIKKI WANTS TO USE THE FEWEST COINS POSSIBLE. WHICH COINS SHOULD SHE USE TO MAKE 53¢ IN CHANGE? TOUCH THE PIECES OF MONEY YOU WANT TO USE. YOU CAN USE A PIECE OF MONEY MORE THAN ONCE. WHEN YOU'RE DONE, TOUCH ENTER.


What are the fewest pieces of money Nikki should use to make the change?

Touch the pieces of money you want to use. You can use a piece of money more than once if you need to. When you're done, touch ENTER.

new question

← ADDITION

VIDEO: Nikki closing cash box and Mr. Colby pocketing change and looking preoccupied.

NARRATOR VO - 2nd AUDIO

Suppose Nikki had no quarters. Then, which coins should she use to make fifty-three cents in change? Touch the pieces of money you want to use.

MV-12

NIKKI
Thanks, Mr. Colby. I hope... (Mr. Colby cuts in; is shaking head slightly - side to side)

MR. COLBY
You know, I'm just not thinking clearly today. I always need hangers, and I might as well get a few more while I'm here. (heads toward rack) Sorry, Nikki, but will you figure up (pause) eight more?

NIKKI
(starts writing receipt) No problem, Mr. Colby.

Mr. Colby returns to counter and puts eight hanger packages on it, then starts to get out wallet

NIKKI
(finishes receipt) Okay, it's three dollars and seventy-eight cents.

MR. COLBY
Oh, you're gonna love this! I only have a twenty. (puts $20 bill on counter)

TO STILL

GRAPHIC/TEXT SCREEN: RECEIPT WITH TOTAL VISIBLE AND TWENTY DOLLAR BILL AT TOP, QUESTION UNDERNEATH, THEN DIRECTIONS;, FOUR MONEY CHOICES ON BOTTOM

CHANGE

NARRATOR VO - 2ND AUDIO

When Nikki counts out Mr. Colby's change, ~~as she~~ and hands it to him, what piece of money should she give him first? Touch the correct piece of money.

TEXT:

WHEN NIKKI COUNTS OUT MR. COLBY'S CHANGE, ~~AS SHE~~ AND HANDS IT TO HIM, WHAT PIECE OF MONEY SHOULD SHE GIVE HIM FIRST? TOUCH THE CORRECT PIECE OF MONEY.

(penny) ✓
(dime)
(one dollar bill)
(five dollar bill)

CHANGE

GRAPHIC/TEXT SCREEN: RECEIPT WITH TOTAL VISIBLE AND TWENTY DOLLAR BILL AT TOP, QUESTION UNDERNEATH, THEN DIRECTIONS;, EIGHT MONEY CHOICES ON BOTTOM LEFT AND WORKING SPACE ON BOTTOM RIGHT WITH RETRY BOX BOTTOM LEFT AND ENTER BOX BOTTOM RIGHT

NARRATOR VO - 2ND AUDIO

~~What are the fewest pieces of money Nikki should use to make the change~~? Touch the pieces of money you want to use. When you're done ~~your answer is just like you want it~~, touch enter.

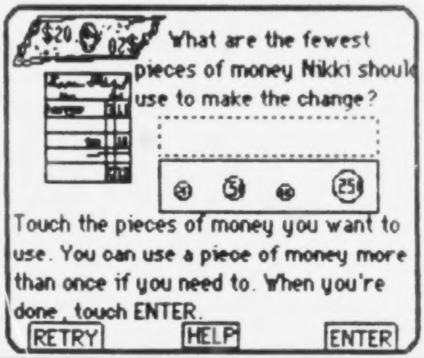
Nikki wants to use the fewest pieces of money possible. What should she use to make sixteen dollars and twenty-two cents in change?

You can use a piece of money more than once.

corrected NARRATOR VO

Nikki wants to use the fewest pieces of money possible. What should she use to make sixteen dollars and twenty-two cents in change? Touch the pieces of money you want to use. You can use a piece of money more than once. When you're done, touch enter.

TEXT:
NIKKI WANTS TO USE THE FEWEST PIECES OF MONEY POSSIBLE. WHAT SHOULD SHE USE TO MAKE $16.22 IN CHANGE? TOUCH THE PIECES OF MONEY YOU WANT TO USE. YOU CAN USE A PIECE OF MONEY MORE THAN ONCE. WHEN YOU'RE DONE, TOUCH ENTER.



What are the fewest pieces of money Nikki should use to make the change?

Touch the pieces of money you want to use. You can use a piece of money more than once if you need to. When you're done, touch ENTER.

VIDEO: Cash box closed; change on counter; Nikki putting packages in small bag.

MR. COLBY
Nikki, I hate to make you work so hard, but I need change for the parking meter. (takes one $1 bill out of wallet, puts it on second

$1 bill from change on counter,
and pushes them toward Nikki)
Just give me some quarters and
dimes?

Nikki picks up the two ones, puts them by cash box, then opens box

NIKKI
Sure, Mr. Colby, I got a lot of
change from my last customer.

TO STILL

GRAPHIC/TEXT SCREEN: DOLLAR BILL AT TOP, QUESTION UNDERNEATH, THEN DIRECTIONS, AND KEYPAD ON BOTTOM

NARRATOR VO - 2ND AUDIO
In order to exchange money for an equal value, you need to know how many of one coin are the same as a different coin or bill. Answer the following questions about money equivalents. They are multiple choice questions. Just touch the blue dot next to the correct answer.

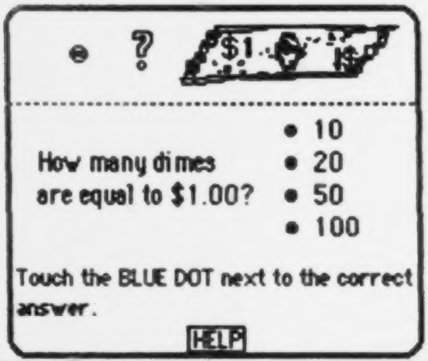
NARRATOR VO - 2ND AUDIO
How many dimes ~~are~~ equal ~~to~~ one dollar?

TEXT:

CHANGE

HOW MANY DIMES ~~A~~RE EQUAL ~~T~~O
ONE DOLLAR?
- 10
- 20
- 50
- 100

TOUCH THE BLUE DOT NEXT TO THE
CORRECT ANSWER.



How many dimes
are equal to $1.00?
- 10
- 20
- 50
- 100

Touch the BLUE DOT next to the correct
answer.

GRAPHIC/TEXT SCREEN: DOLLAR BILL AT TOP, QUESTION
UNDERNEATH, THEN DIRECTIONS, AND KEYPAD ON BOTTOM

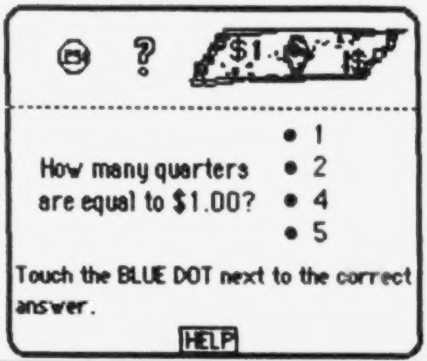
NARRATOR VO - 2ND AUDIO

How many quarters a~~r~~e equal ~~t~~o one
dollar?

CHANGE

TEXT:
HOW MANY QUARTERS ARE EQUAL TO
ONE DOLLAR?
- 1
- 2
- 4
- 5

TOUCH THE BLUE DOT NEXT TO THE
CORRECT ANSWER.


How many quarters are equal to $1.00?

- ● 1
- ● 2
- ● 4
- ● 5

Touch the BLUE DOT next to the correct answer.

NARRATOR VO - 2ND AUDIO

How many nickels are equal to one dollar?

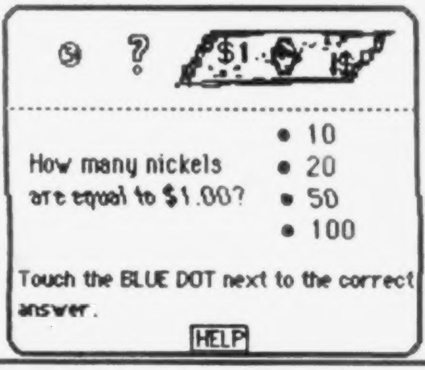
CHANGE

TEXT:

HOW MANY NICKELS ARE EQUAL TO ONE DOLLAR?

- ● 10
- ● 20
- ● 50
- ● 100

TOUCH THE BLUE DOT NEXT TO THE CORRECT ANSWER.


How many nickels are equal to $1.00?

- ● 10
- ● 20
- ● 50
- ● 100

Touch the BLUE DOT next to the correct answer.

NARRATOR VO - 2ND AUDIO

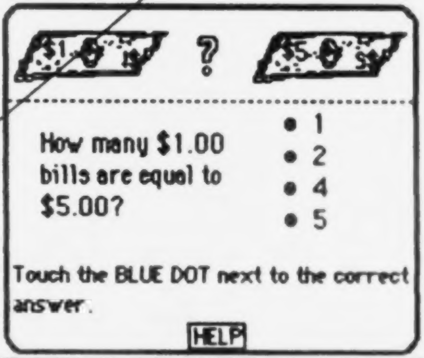
How many one dollar bills are
equal to five dollars?

TEXT:

HOW MANY ONE DOLLAR BILLS ARE
EQUAL TO FIVE DOLLARS?

● 1
● 2
● 4
● 5

TOUCH THE BLUE DOT NEXT TO THE
CORRECT ANSWER.



How many $1.00 bills are equal to $5.00?

● 1
● 2
● 4
● 5

Touch the BLUE DOT next to the correct answer.

DELETE

NARRATOR VO - 2ND AUDIO

How many five dollar bills ~~are~~
equal ~~to~~ twenty dollars?

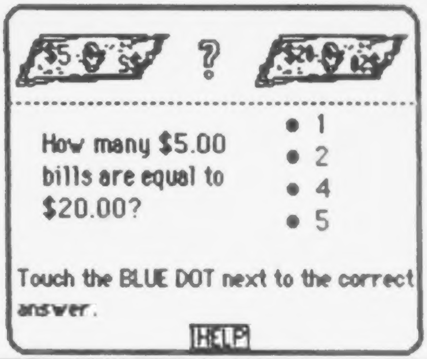
TEXT:

HOW MANY FIVE DOLLAR BILLS ARE
EQUAL TO TWENTY DOLLARS?

● 1
● 2
● 4
● 5

TOUCH THE BLUE DOT NEXT TO THE
CORRECT ANSWER.

CHANGE



How many $5.00 bills are equal to $20.00?

- ● 1
- ● 2
- ● 4
- ● 5

Touch the BLUE DOT next to the correct answer.

PROPS: add to LM-1&2 and MV-1

twenty dollar bill
2 one dollar bills
10 packages picture hangers

rev 5/3/88

Your Earnings on the Job
Scene ME-1
Character 3, B.J.
Character 7, Mr. Martin
Warehouse

VIDEO - An aisle of the warehouse. Mr. Martin is talking to another worker. He is carrying a clipboard, which he hands to the worker when he departs. B.J. catches up with him.

B.J.
(hesitantly) Mr. Martin? You said you wanted to see me?

MR. MARTIN
Yes, B.J. (slight pause) B.J., you do very good work, really, and I've decided you deserve a raise. How does five dollars an hour sound?

B.J.
Wow, that's terrific, Mr. Martin. Thanks very much.

MR. MARTIN
(looking at watch) Well, you'd better get back to work an earn it. I'll see you later. (exits)

B.J.
Five dollars an hour. I wonder how much I'll make if I work forty hours a week? (exits)

TEXT SCREEN.

CHANGE + ADDITION

NARRATOR VO - 2ND AUDIO

What ~~does~~ should B.J. ~~need to~~ do to find out how much she will earn each week? Remember, she works five days a week, eight hours a day, for a total of forty hours a week. She earns five dollars an hour. Touch the bluedot next to the correct answer.

corrected NARRATOR VO

What should B.J. do to find out how much she will earn each week? Remember, she works five days a week, eight hours a day, for a total of forty hours a week. She earns five dollars an hour. Touch the blue dot next to the correct answer.

TEXT SCREEN:

WHAT SHOULD B.J. DO TO FIND OUT
HOW MUCH SHE WILL EARN EACH WEEK?

REMEMBER, SHE WORKS 5 DAYS A WEEK,
8 HOURS A DAY, FOR A TOTAL OF 40 HOURS
A WEEK. SHE EARNS $5.00 AN HOUR.

● ...MULTIPLY $5.00 X 4.0
● ...MULTIPLY $5.00 X 5.0
● ...MULTIPLY $5.00 X 40.0
● ...MULTIPLY $5.00 X 100.0

TOUCH THE BLUE DOT NEXT TO THE
CORRECT ANSWER.

TEXT SCREEN: Question at top, answer selected on previous question, new response area, number bar at bottom

NARRATOR VO - 2ND AUDIO

Work ~~out the answer to~~ this problem to find out how much B.J. will earn in a week. Touch the numbers on the bar to answer. When you're done, touch enter.

CHANGE
(deletion)

C

Your Earnings on the Job
Scene ME-2
Character 3, B.J.
Character 7, Mr. Martin
Warehouse

VIDEO - Mr. Martin catches up with B.J. in the aisle and stops her to ask a question. He is carrying a clipboard.

MR. MARTIN

B.J., we're scheduled to receive a huge shipment of pasta tonight and another tomorrow. We've gotta get the first one packaged and shipped-out on the double. Can you work overtime?

B.J.

Sure, Mr. Martin. I'm glad to.

MR. MARTIN

Great, I'll put you on the schedule.
(makes a note to himself on clipboard)
I appreciate this on such short notice, B.J., That'll be two hours of overtime, at a rate of time-and-a-half. (exits)

B.J.

First a raise and now overtime! (exits)

TEXT SCREEN.

NARRATOR VO - 2ND AUDIO

What ~~does~~ should B.J. ~~need to~~ do to find out her hourly overtime pay rate? Remember, the hourly overtime rate is time-and-a-half.

CHANGE + ADDITION

TEXT SCREEN:

WHAT DOES B.J. NEED TO DO TO FIND OUT HER HOURLY OVERTIME PAY RATE?

REMEMBER, THE HOURLY OVERTIME RATE IS "TIME-AND-A-HALF."

● ...MULTIPLY $5.00 X 0.5
● ...MULTIPLY $5.00 X 1.5
● ...MULTIPLY $5.00 X 2.0
● ...MULTIPLY $5.00 X 8.0

TOUCH THE BLUE DOT NEXT TO THE CORRECT ANSWER.

TEXT SCREEN: Question at top, answer selected on previous question, new response area, number bar at bottom

NARRATOR VO - 2ND AUDIO

Work ~~out the answer to~~ this problem to find out B.J.'S hourly overtime pay rate.

CHANGE

Your Earnings on the Job
Scene ME-3
Character 3, B.J.
Character 7, Mr. Martin
Warehouse

VIDEO - Mr. Martin arrives in a hurry, looking harassed. B.J. is working on something.

MR. MARTIN

B.J., we are really pressed to get these out by six o'clock tonight. You'll get a ten percent bonus on today's wages if we make it.
(he hurries on)

B.J.

Yes, sir! (continues to work, talking to herself) More money! This is wild. My base pay, eight hours at five dollars per hour, is forty dollars. My overtime pay, two hours at seven dollars and fifty cents per hour, is fifteen dollars. (looks up, doing mental calculations) Together, that makes fifty-five dollars. Plus ten percent for the bonus!

TEXT SCREEN.

NARRATOR VO - 2ND AUDIO
What is ten percent of fifty-five dollars?

TEXT SCREEN:
WHAT IS 10 % OF $55.00?

TOUCH THE NUMBERS ON THE BAR TO ANSWER. WHEN YOU'RE DONE, TOUCH ENTER.

Your Earnings on the Job
Scene ME-4
Character 3, B.J.
Character 7, Mr. Martin
Warehouse

VIDEO - B.J. has packed the last of the pasta and is putting on her jacket and picking up her purse to leave. In her purse is an old paystub. Mr. Martin walks by and says thanks/good-night.

MR. MARTIN
(looking tired) Thanks a lot, B.J. We couldn't have done it without you.

B.J.
Thank you, Mr. Martin. What a day! A raise, overtime, and a bonus! My friends aren't going to believe this! I can't wait to tell Nikki!

MR. MARTIN
You did have a day, didn't you? Excellent. But, you know, the more you make, the more they take....in deductions, that is

B.J.
(looking confused and shaking her head) Deductions? I never understood how all that worked.

MR. MARTIN
You figured out gross pay by figuring out what goes into your paycheck, right? Your base pay, your overtime, your bonus.

B.J. nods "Mm hmm" in agreement

MR. MARTIN
Well, deductions are what come out of your check before you even see it -- your health insurance, Social Security, federal and state taxes -- that sort of stuff. When you subtract deductions from

gross pay, what's left is net pay. That's what goes in your pocket.

B.J.

(searching for pay stub in her purse) Yeah, I thought it was something like that. (finds the pay stub) Ah, here. I thought I had one. (holding pay stub out toward Mr. Martin) Here's one of my old pay stubs. Will you show me on here, Mr. Martin? I really do want to understand this.

MR. MARTIN

Sure, B.J., happy to. Let's see it.

CU upper part of pay stub, focusing on deductions row

These are your deductions here (traces with finger) insurance, five dollars and charity, one dollar. Now, if you were part of a union, you could have your dues deducted. You always sign-up for these voluntary deductions. Now. Federal, FICA - that's Social Security, and state taxes. Those are automatic deductions. They have to be taken out. What have we got all together?

GRAPHIC/TEXT SCREEN: PAY STUB.

NARRATOR VO - 2ND AUDIO

How many deductions are there for the current pay period?

TEXT SCREEN:
HOW MANY DEDUCTIONS ARE THERE
FOR THE CURRENT PAY PERIOD?

TOUCH THE NUMBERS ON THE BAR
TO ANSWER. WHEN YOU'RE DONE,
TOUCH ENTER

GRAPHIC/TEXT SCREEN: PAY STUB.

NARRATOR VO - 2ND AUDIO

What are the five deductions for the current pay period? Touch the numbers on the paystub that are deductions. When you're done, touch enter.

ADDITION

TEXT SCREEN:

WHAT ARE THE 5 DEDUCTIONS FOR THE CURRENT PAY PERIOD?

TOUCH THE NUMBERS ON THE PAYSTUB THAT ARE DEDUCTIONS.

GRAPHIC/TEXT SCREEN: PAY STUB.

NARRATOR VO - 2ND AUDIO

What is the total ~~amount~~ of these deductions?

CHANGE (deletion)

TEXT SCREEN:
WHAT IS THE TOTAL AMOUNT OF
THESE DEDUCTIONS?

TOUCH THE NUMBERS ON THE BAR
TO ANSWER. WHEN YOU'RE DONE,
TOUCH ENTER

GRAPHIC/TEXT SCREEN: PAY STUB.

NARRATOR VO - 2ND AUDIO

What is the gross pay for the current pay period? Touch the number on the paystub.

TEXT SCREEN:
WHAT IS THE GROSS PAY FOR THE
CURRENT PAY PERIOD?

TOUCH THE NUMBER ON THE PAYSTUB.

CHANGE

GRAPHIC/TEXT SCREEN: PAY STUB.

NARRATOR VO - 2ND AUDIO

What ~~does~~ should B.J. ~~need to~~ do to find out her net pay?

TEXT SCREEN:
WHAT DOES B.J. NEED TO DO TO FIND OUT HER NET PAY?

REMEMBER, YOU SAID THE TOTAL OF HER DEDUCTIONS WAS ___#1___
AND HER GROSS PAY WAS __#2___

- ADD [answer 1 + answer 2]
- SUBTRACT [answer 1 - answer 2] change this
- ADD [answer 2 + answer 1]
- SUBTRACT [answer 2 - answer 1]

TOUCH THE BLUE DOT NEXT TO THE CORRECT ANSWER.

GRAPHIC/TEXT SCREEN

NARRATOR VO - 2ND AUDIO

Work ~~out the answer to~~ this problem
to find B.J.'s net pay.

TEXT SCREEN:
WORK OUT THE ANSWER TO THIS
PROBLEM TO FIND B.J.'S NET PAY.

TOUCH THE NUMBERS ON THE BAR
TO ANSWER. WHEN YOU'RE DONE,
TOUCH ENTER

CHANGE
(deletion)

rev 5/3/88

Money Related Forms
Scene MF-1
Character 2, Manny
Kitchen

VIDEO - Manny is in kitchen - headed toward desk. He passes a co-worker.

WORKER
Manny, we're almost out of honey.

MANNY
I know. I'm gonna do the ordering right now. (walks on)

Manny at desk

MANNY
Where are the order forms? (hunts through stack of papers) Ah, here it is - The Naturally Sweet Company.

Shot of whole form then zoom in to upper part

MANNY
(reading first note) Honey, five gallons.
(traces finger down description column until he finds honey; refers back to note to verify amount to order)
Okay, honey.

during CU upper part of form

MANNY VO 1ST AUDIO
Let's see. Honey comes in one gallon jars and we need five gallons.

GRAPHIC/TEXT SCREEN: ORDER FORM

NARRATOR VO - 2ND AUDIO

How many one gallon jars of honey
should Manny order if he wants five
gallons al~~l~~ together? Touch the blue
dot next to the correct answer.

TEXT SCREEN:
HOW MANY ONE GALLON JARS OF HONEY
SHOULD MANNY ORDER IF HE WANTS FIVE
GALLONS AL~~L~~ TOGETHER?

- ...
- ...
- ...
- ...

TOUCH THE BLUE DOT NEXT TO THE
CORRECT ANSWER.

VIDEO: MANNY PUTS HONEY NOTE FACE DOWN AND PICKS UP NEXT NOTE.

MANNY

Okay, that's it for honey. Next, white sugar.
(traces finger down description column until he finds white sugar; refers back to note to verify amount to order)
That comes in ten pound bags. And we need
(looks at note) thirty pounds.

MF
~~ME~~-2

GRAPHIC/TEXT SCREEN: ORDER FORM

CHANGE

NARRATOR VO - 2ND AUDIO

How many ten pound bags of white sugar should Manny order ~~to get~~ if he wants thirty pounds all together?

TEXT SCREEN:

HOW MANY TEN POUND BAGS OF WHITE SUGAR SHOULD MANNY ORDER TO GET THIRTY POUNDS ALL TOGETHER?

● ...

● ...

● ...

● ...

TOUCH THE BLUE DOT NEXT TO THE CORRECT ANSWER.

MF
~~ME~~-3

VIDEO - Manny at desk moving on to next note.

MANNY

Rolling now, boy. Next, we have (reading note) dark brrown sugar. It comes in five pound sacks and we need sixty pounds. That's twelve bags we need (writes in number). And finally, (picks up last note) molasses. We need two-and-a-half gallons and it comes in half-gallon containers. So, we need five of them. (writes in number) Done! Well, with the first step anyway. Let's see, what's next?

GRAPHIC/TEXT SCREEN: ORDER FORM

CHANGE

NARRATOR VO - 2ND AUDIO

What ~~does~~ should Manny ~~need to~~ do next?

- Figure sales tax on the total order.
- Determine quantity of each product.
- Sign and mail the form.
- Figure total item prices.

TEXT SCREEN:
WHAT DOES MANNY NEED TO DO NEXT?

- FIGURE SALES TAX ON THE TOTAL ORDER.
- DETERMINE QUANTITY OF EACH PRODUCT.
- SIGN AND MAIL THE FORM.
- FIGURE TOTAL ITEM PRICES.

TOUCH THE BLUE DOT NEXT TO THE CORRECT ANSWER.

MANNY

Okay, next I need to figure out the total item price for each item.

GRAPHIC/TEXT SCREEN: ORDER FORM

CHANGE

NARRATOR VO - 2ND AUDIO

What ~~does~~ should Manny ~~need to~~ do to find out the total item price for the honey?

TEXT SCREEN:

WHAT DOES MANNY NEED TO DO TO FIND OUT THE TOTAL ITEM PRICE FOR THE HONEY?

● MULTIPLY 5 X 1
● MULTIPLY 5 X $9.00
● MULTIPLY $9.00 X 1
● MULTIPLY $9.00 X $9.00

TOUCH THE BLUE DOT NEXT TO THE CORRECT ANSWER.

GRAPHIC/TEXT SCREEN: ORDER FORM

NARRATOR VO - 2ND AUDIO
What is the total item price for the honey?

TEXT SCREEN:
WHAT IS THE TOTAL ITEM PRICE FOR THE HONEY?

TOUCH THE NUMBERS ON THE BAR TO ANSWER. WHEN YOU'RE DONE, TOUCH ENTER.

MF
ME-6

MANNY
So I've got the cost of each product figured out. I think I should do the sales tax now.

GRAPHIC/TEXT SCREEN: ORDER FORM

NARRATOR VO - 2ND AUDIO

CHANGE

What ~~does~~ should Manny ~~need to~~ do before he can figure the sales tax?

- Find the subtotal of the order.
- Find the total weight of the order.
- Find the total number of products.
- Find the shipping charges.

TEXT SCREEN:
WHAT DOES MANNY NEED TO BEFORE HE CAN FIGURE THE SALES TAX?

- FIND THE SUBTOTAL OF THE ORDER.
- FIND THE TOTAL WEIGHT OF THE ORDER.
- FIND THE TOTAL NUMBER OF PRODUCTS.
- FIND THE SHIPPING CHARGES.

TOUCH THE BLUE DOT NEXT TO THE CORRECT ANSWER.

MANNY VO - 1ST AUDIO
So, I'll add these together. (mumbles a bit as if figuring) Ta da! The subtotal is one hundred eighty-seven dollars even. (writes number on form)

MF
~~ME~~-7

Next, I need the tax chart.

gets out chart; show whole then zoom in on bottom

This chart only goes up to one hundred dollars! (slightly disgusted) Now how am I supposed to figure five percent tax on one hundred eighty-seven dollars if the chart only goes up one hundred dollars?

GRAPHIC/TEXT SCREEN: ORDER FORM

CHANGE

NARRATOR VO - 2ND AUDIO

What ~~does~~ should Manny ~~need to~~ do to find the five percent sales tax on one hundred eighty-seven dollars?

TEXT SCREEN:

WHAT DOES MANNY NEED TO DO TO FIND THE SALES TAX ON ONE HUNDRED EIGHTY-SEVEN DOLLARS?

- ● ADD $5.00 + $5.00
- ● ADD $5.00 + $4.35
- ● SUBTRACT $5.00 - $4.35
- ● ADD $5.00 + $4.34

TOUCH THE BLUE DOT NEXT TO THE CORRECT ANSWER.

MANNY

Then my tax is nine dollars and thirty-five cents (writes number on form) Now, to figure the shipping weight.

CU order form; Manny traces along order form

How much does all this weigh? Let's see... white sugar - we're getting three bags and they weigh ten pounds each - three times ten equals thirty pounds (writes in number). Brown sugar - twelve times five pounds equals (pause) sixty pounds. Okay. (writes in number) Five gallons of honey. Each gallon weighs nine pounds.

GRAPHIC/TEXT SCREEN: ORDER FORM

NARRATOR VO - 2ND AUDIO

How much do[illegible] five gallons of honey weigh?

TEXT SCREEN:
HOW MUCH DO[illegible] 5 GALLONS OF HONEY WEIGH?

TOUCH THE NUMBERS ON THE BAR TO ANSWER. WHEN YOU'RE DONE, TOUCH ENTER.

CHANGE

MANNY VO - 2ND AUDIO

That's forty-five pounds of honey. Now, two-and-a-half gallons of molasses. A half-gallon weighs four pounds.

GRAPHIC/TEXT SCREEN: ORDER FORM

NARRATOR VO - 2ND AUDIO

How much do five, half gallon containers of molasses weigh?

TEXT SCREEN:

HOW MUCH DO 5, HALF-GALLON CONTAINERS OF MOLASSES WEIGH?

TOUCH THE NUMBERS ON THE BAR TO ANSWER. WHEN YOU'RE DONE, TOUCH ENTER.

CHANGE

CU on weights; Manny traces with finger

MANNY VO

That's twenty pounds. Now, I have to figure the total weight -- that's thirty plus sixty plus forty-five plus twenty ... uh... equals one hundred fifty-five pounds.

MANNY VO

One hundred fifty-five pounds (writes number on form) Okay, shipping charges. I'd better check the chart.

(gets out chart) All right. I know we're in zone one, and the total weight is one hundred fifty-five pounds.

GRAPHIC/TEXT SCREEN: ORDER FORM

CHANGE

NARRATOR VO - 2ND AUDIO

What ~~is~~ are the shipping chargeS for the order?

TEXT SCREEN:

WHAT ~~IS~~ ARE THE SHIPPING CHARGES FOR THE ORDER

TOUCH THE BLUE DOT NEXT TO THE CORRECT ANSWER.

MANNY

(writing in shipping charge)

That's that on the shipping charges. I've got the subtotal, that's $187.00, and tax, that's $9.35, and shipping charges, that's $17.89.

GRAPHIC/TEXT SCREEN: ORDER FORM

NARRATOR VO - 2ND AUDIO

What is the total cost of the order?

TEXT SCREEN:
WHAT IS THE TOTAL COST OF THE ORDER?

TOUCH THE NUMBERS ON THE BAR TO ANSWER. WHEN YOU'RE DONE, TOUCH ENTER.

MANNY

I feel like a regular mathematical wizard, figuring out all this stuff. (writes in total $214.24, closes folder, and drops order into Mrs. Y's box) Whew, what a day! (takes off apron) I'm out of here!

Carol goes by with pizzas and they say something to each other.

Working with Money Related Forms: Recording Payment and Computing Balance Due
Scene MF - 2
Character 4, Nikki
Small gallery, frame shop

It is getting toward the end of the day and business has slowed down, so Nikki has decided to do some of the shop paperwork. Nikki is opening the last of the day's mail for the shop with a letter opener.

NIKKI
Oh good, we got another payment
from Mr. Barwood for that picture
he bought a few months ago. He
must be just about finished paying
for it.

Nikki searches through the little file where these records are kept and pulls out Mr. Swindell's account record. She lays it on the counter next to the check. It is in statement format with payments and balance forward recorded. The picture originally cost $160. 3 payments have been made. There is currently a balance due of $55.00.

NIKKI
Let's see. To begin with he owed
$160.00. The first month he paid
$40.00. The second month he paid
$40.00. And last month he paid
$25.00. So now he owes $55.00 and
this check is for $25.00.

GO TO CLOSEUP OF CHECK AND STATEMENT SIDE BY SIDE.

GO TO VERTICAL SPLIT SCREEN WITH STILL OF CHECK AND STATEMENT ON THE LEFT AND TEXT SCREEN ON RIGHT.

CHANGE

NARRATOR VO (1ST AUDIO)
What ~~does~~ should Nikki ~~need to~~ do to
find out how much money Mr.
Barwood still owes?

==

STILL OF
STATEMENT AND
CHECK

TEXT SCREEN:
WHAT DOES NIKKI NEED TO DO TO
FIND OUT HOW MUCH MONEY MR.
BARWOOD STILL OWES?
o ADD $55.00 + $25.00
o SUBTRACT $160.00 - $25.00
o ADD $55.00 + $160.00
o SUBTRACT $55.00 - $25.00

TOUCH THE BLUE DOT NEXT TO THE CORRECT ANSWER.

WHATEVER THE STUDENT SELECTS COMES UP ON A FULL TEXT SCREEN.

NARRATOR VO (2ND AUDIO)
Work ~~out the answer to~~ this
problem to find out how much
Mr. Barwood still owes.

CHANGE

==

TEXT SCREEN:
WORK OUT THE ANSWER TO THIS PROBLEM TO FIND OUT HOW MUCH MR. BARWOOD STILL OWES.

$55.00
- $25.00

(RESPONSE WINDOW HERE)

TOUCH THE NUMBERS ON THE BAR TO ANSWER. WHEN YOU'RE DONE TOUCH ENTER.

==

Nikki is finishing counting out some of the money from the cash register that she is going to deposit in the bank. She is just finishing counting up the change ($17.39) The coins are already in one of those cloth bank deposit bags.

NIKKI
Okay, that's $17.39 in change that
needs to be deposited.

GO TO VERTICAL SPLIT SCREEN WITH GRAPHIC OF DEPOSIT SLIP ON LEFT AND TEXT ON RIGHT.

NARRATOR VO - 2ND AUDIO
Where on the deposit slip should
Nikki record the change she is
depositing? Touch the deposit slip
in the correct place.

NO CHANGE

==

GRAPHIC OF DEPOSIT SLIP	TEXT: WHERE ON THE DEPOSIT SLIP SHOULD NIKKI RECORD THE CHANGE SHE IS DEPOSITING? TOUCH THE DEPOSIT SLIP IN THE CORRECT PLACE.

==

Nikki is just finishing counting out the bills that are to be deposited.

NIKKI
Fifty-seven, Fifty-eight,
Fifty-nine. So that's
fifty-nine dollars in bills.

GO TO SPLIT TEXT SCREEN AS ABOVE WITH GRAPHIC OF DEPOSIT SLIP ON LEFT AND TEXT ON RIGHT.

NARRATOR VO - 2ND AUDIO
Where on the deposit slip should Nikki
record the bills she is depositing?
Touch the deposit slip in the
correct place.

NO CHANGE

===

GRAPHIC OF DEPOSIT SLIP	TEXT: WHERE ON THE DEPOSIT SLIP SHOULD NIKKI RECORD THE BILLS SHE IS DEPOSITING? TOUCH THE DEPOSIT SLIP IN THE CORRECT PLACE.

===

She puts the bills in the deposit bag.

CLOSEUP SHOT OF NIKKI, THE DEPOSIT SLIP, AND THE DEPOSIT BAG.

NIKKI
Oh, I almost forgot. I
need to deposit Mr. Barwood's
check for $25.00 too.

She reaches over to the cash box (drawer), gets the check, looks at it, and puts it in the deposit bag.

GO TO SPLIT GRAPHICS SCREEN AS ABOVE WITH GRAPHIC OF DEPOSIT SLIP ON LEFT AND TEXT ON RIGHT.

NARRATOR VO - 2ND AUDIO
Where on the deposit slip should
Nikki record Mr. Barwood's check?
Touch the deposit slip in the
correct place.

NO CHANGE

===

GRAPHIC OF DEPOSIT SLIP	TEXT: WHERE ON THE DEPOSIT SLIP SHOULD NIKKI RECORD MR. BARWOOD'S CHECK? TOUCH THE DEPOSIT SLIP IN THE CORRECT PLACE.

GO TO SPLIT TEXT AND GRAPHICS SCREEN WITH GRAPHIC OF DEPOSIT SLIP (WITH ABOVE AMOUNTS ENTERED IN APPROPRIATE PLACES) ON LEFT AND TEXT ON RIGHT.

NARRATOR VO - 2ND AUDIO
What is the total ~~amount of~~ deposit
~~money~~ that Nikki is ~~depositing~~? making?

CHANGE

==

GRAPHIC OF DEPOSIT SLIP WITH ALL AMOUNTS FROM BEFORE ENTERED.	TEXT: WHAT IS THE TOTAL AMOUNT OF MONEY THAT NIKKI IS DEPOSITING? (RESPONSE WINDOW HERE) TOUCH THE NUMBERS ON THE BAR TO ANSWER. WHEN YOU'RE DONE, TOUCH ENTER.

==

Nikki is standing in front of the counter holding the phone up to her ear.

NIKKI
Come on, B.J., where are you?

B.J. walks in the door.

B.J.
Are you looking for me? I had to work late. Are you ready to go?

NIKKI
(Holding up deposit bag)
I just need to drop this off in the night depository at the bank.
Oh, Manny and Tom are meeting us at the movies.
So, how was work?

B.J.
I got a raise...and a bonus.

NIKKI
Wow, that's great. So...you're buying the pizza after the flick tonight.

B.J.
Well............

NIKKI
Yeah, it's settled.

B.J.
I guess it's true.

NIKKI
What is?

B.J.
The more you make, the more
they take.

They are moving toward the door during this conversation and finall[illegible] open it and walk out. Lights out. Shop bell rings. Shot [illegible]rkened shop.

epr/4/28/88

APPENDIX D
Instructional Working Scripts

TO

FINAL REPORT

AN INTERACTIVE VIDEODISC PROGRAM TO EVALUATE AND TRAIN JOB-RELATED MATH SKILLS FOR TRANSITION

FOR

GRANT #G008730292

Submitted to:

U.S. Department of Education
Office of Special Education Programs

Carolyn DeMeyer Harris
Elaine Robey
Kathleen Wholey
Robert Pels

Macro Systems, Inc.

November 30, 1989

APPENDIX D CONTENTS

Instructional Working Scripts

1. OPENING
2. MEASURING LENGTH [LM]
3. MEASURING PERIMETER AND AREA [GM]
4. MEASURING CAPACITY [CM]
5. MEASURING WEIGHT [WM]
6. MEASURING TEMPERATURE [PM]
7. MEASURING TIME [TM]
8. MONEY VALUES AND RELATIONSHIPS [MV]
9. MONEY EARNED [ME]
10. MONEY-RELATED FORMS [MF]

OPENING SCRIPT

AUDIO	SCREEN	PROPS, ETC.
#1 - MUSIC	**#1 - OPENING SCREEN:** Working with Math A Math Skills Instructional Program Copyright © 1989 Macro Systems, Inc.	
#2 - NARRATOR VO: Our world is becoming more complicated. To be prepared for the changes - and move toward success in the future, everyone needs to be able to use mathematics. This program provides instruction in work-related math skills that you may need to use on the job. Mr. Barwood is the owner of a small restaurant. He knows first-hand the many kinds of math-related problems young workers face. And, he thinks he's been pretty successful in helping his employees learn ways to solve these problems. You'll be working with Mr. Barwood on job-related math skills. But, first here is information on how to work with this program.	**#2 - MOTION**: selected segments from footage	
#3 - NARRATOR VO: Each lesson operates in the same way. Mr. Barwood will talk about a problem and how to solve it. He will show you examples and then let you practice on your own. After every question you'll get some feedback. Mr. Barwood will tell you if your answer is correct. If your answer is wrong, he'll try to give you a hint and have you answer the problem again.	**#3 - TEXT/GRAPHIC SCREEN:**	

AUDIO

NARRATOR VO: If you really have trouble with a lesson, you'll get a message about getting some help. Throughout the program you'll be asked what you want to do next. The choices will appear in boxes on the screen. For example:
What do you want to do now?
- Go on
- Try problem again
- Try lesson again
- Quit and go to menu
- Take the quiz

You just touch the one you want.

When you decide you're ready to take the quiz, you'll answer questions just like the ones you practiced. But, you won't get any feedback after each answer. When you've finished the quiz, you'll get a score that shows how many right and wrong answers you had.

You'll always touch the screen to answer the questions. But, you'll touch it in different ways for different kinds of questions. Here's a demonstration to show you examples of the questions and how to answer them. Don't worry, though. When you're working in the program, each question always has directions for you.

For multiple choice questions you will touch the blue dot by the answer you want. Look at the first example.
- How many inches equal 1 foot?
- There are 4 choices, but 12 inches is the correct answer.
- So, you touch the blue dot next to that choice.

SCREEN

TEXT/GRAPHIC SCREEN:

PROPS, ETC.

AUDIO

NARRATOR VO: • The dot changes color to show that your answer has been entered.

- And, the program goes on.

Yes-No questions work the same way.

- Are there 12 inches in 1 foot?
- When you touch the blue dot, it changes color.
- And, the program goes on.

You'll answer some questions by touching numbers on a bar and then touching the "enter" box. For example:

- How many inches equal 1 foot?
- Your answer is "12." So, you touch 1, and then 2.
- Oops! It's the wrong number.
- When this happens, just touch the "retry" box. And the problem will start over.
- Now the answer is correct.
- You touch "enter."
- And, the program goes on.

Sometimes, the choices are shown as pictures, but they work the same way.

- Which picture shows 1 foot?
- You touch the blue dot next to the answer you want.
- It changes color.
- And, the program goes on.

Some questions want you to answer by touching a certain place on the screen. For example:

- On this pay stub, you're asked how much was deducted for state taxes.
- You find the amount on the pay stub and touch that number.
- Then, the program goes on.

SCREEN

TEXT/GRAPHIC SCREEN:

PROPS, ETC.

AUDIO

NARRATOR VO:
Some questions want you to figure out how much of something you need for a job. You touch a picture as many times as you need to and then touch "enter." For example:

- How many times should you fill this cup to measure 3 cups of milk?
- You see that it holds 1 cup and you want 3 cups.
- So, you touch it 3 times.
- The cups show up on the screen. You check to make sure it's the answer you want. 3 cups is correct.
- So, you touch "enter."
- And, the program goes on.

To answer questions that use the clock radio, you touch the boxes to set the time you want and then touch enter. For example:

- Set the clock radio to the correct time.
- The watch shows 12:30.
- So, you touch each box until it shows the number you want.
- You check to make sure it's the answer you want. 12:30 is correct.
- So, you touch "enter."
- And, the program goes on.

To answer questions when you're counting money into groups, you touch the coin you want from the top box. Watch carefully:

- Touch a coin to put it in a group. When you have enough coins in a group to equal $1.00, touch the dollar sign box. Keep going until you have all the one-dollar groups you want. Then touch enter.
- When you touch a coin, it will move to the one-dollar grouping box.

SCREEN

TEXT/GRAPHIC SCREEN:

PROPS, ETC.

AUDIO

- When you have as many coins as you want to make exactly one dollar, you touch the dollar sign box.

The grouping box will empty, and a small one-dollar, will show-up along the bottom of the screen.

group

- When you've made all the one-dollar groups you can, you touch "enter."
- And, the program goes on.

Do you want to try a sample question for yourself?

Do you want to try another?

A "help" box is always on the screen with the questions. When you touch it, you'll see 3 boxes:

- Touching "Answers" describes how to work with this program and answer the different kinds of questions.

- Touching "Section Summary" takes you to a short explanation of the kinds of math problems you have in that section.
- Touching "Glossary" gives definitions of some of the unusual or difficult words used in the program.

If there is some other help help available, you can see it by touching "Special."

Work carefully and do your best. Good luck

CORRECT ANSWER FEEDBACK:
[to be placed in 3 -5 places on each side]

Yes, that's the right answer. You're doing a good job.

SCREEN

TEXT/GRAPHIC SCREEN:

PROPS, ETC.

AUDIO	SCREEN	PROPS, ETC.
Yes, that's the correct answer. Congratulations! Yes, your answer is correct. Keep up the good work. Yes, you got it right. Good job!	**TEXT/GRAPHIC SCREEN:**	
UNANTICPATED ANSWER FEEDBACK: [to be placed in 3 -5 places on each side] No, that's the wrong answer. Try again. No, that's incorrect. Keep trying. No, your answer is incorrect. Keep trying. No, you got it wrong. Good luck next time.		
MENU QUESTIONS/STATEMENTS: [to be placed in 3 -5 places on each side] What do you want to do now? Sorry, you missed your third try on that problem. Here is the correct answer. You're still having trouble with these problems. Remember, in the instruction you can get more information for many of the problems by touching HELP and then touching SPECIAL. You're still having trouble with these problems. Talk to your instructor about getting some extra help.		

AUDIO	SCREEN	PROPS, ETC.
You have completed this lesson. What do you want to do now?	**TEXT/GRAPHIC SCREEN:**	
MENU PHRASES: [to be placed 3 - 5 times on each side] Go on Quit and go to menu Go on Quit and go to menu Take the quiz Go on Try problem again Quit and go to menu Go on Try problem again Quit and go to menu Take the quiz		
MENU PHRASES cont Try lesson again Quit and go to menu Take the quiz Quit and go to menu Take the quiz		

AUDIO	SCREEN	PROPS, ETC.
NARRATOR VO:	TEXT/GRAPHIC SCREEN:	
HELP for TYPE of QUESTION cont: [to be put on Side 2 - close to middle] Some questions want you to figure out how much of something you need for a job. You touch a picture as many times as you need to and then touch "enter." To answer questions when you're counting money into groups, touch the coin you want from the top box. Touch a coin to put it in a group. When you have enough coins in a group to equal $1.00, touch the dollar sign box. Keep going until you have all the one-dollar groups you want. Then touch enter.		
Side 1 **STANDARD DIRECTIONS** [to be put in 2 - 3 places on each side]	42736	
12256 12374 #1: Touch the blue dot next to the correct answer.	42830	
12375 #2: Touch the numbers on the bar to 12520 answer. When you're done, touch enter.	42831 42977	
12521 #3: Touch the numbers on the bar to answer. The cursor will move automatically. When you're done, touch 12740 enter.	42978 43195	

AUDIO	SCREEN	PROPS, ETC.
NARRATOR VO:	TEXT/GRAPHIC SCREEN:	

SPECIFIC DIRECTIONS WITHIN LESSONS
[each to be put in appropriate lesson]

CM - p. 5: Touch the spoon as many times as you need. When you're done, touch enter.

CM - p. 22: Touch the cup as many times as you need. When you're done, touch enter.

CM - p. 32: Touch the recipe at the correct place.

WM - p. 9: Touch the numbers on the bar to answer. The cursor will move automatically from pounds to ounces. When you're done, touch enter.

TM - p. 8: Touch the boxes on the clock radio to set the time. Each touch will change the number in a box. When you're done, touch enter.

TM - p. 17: Touch the numbers on the bar to answer. The cursor will move automatically from hours to minutes. When you're done, touch enter.

LM - p. 10: Touch the numbers on the bar to answer. The cursor will move automatically from feet to inches. When you're done, touch enter.

LM - p. 13: Touch the ~~pipe~~ molding at the correct place.

AUDIO	SCREEN	PROPS, ETC.
NARRATOR VO:	TEXT/GRAPHIC SCREEN:	
SPECIFIC DIRECTIONS WITHIN LESSONS [each to be put in appropriate lesson]		
MV - p. 5: Touch the coin as many times as you need. When you're done, touch enter.		
MV - p. 9: Touch a coin to put it in a group. When you have enough coins to equal $1.00, touch the DOLLAR SIGN BOX. Keep going until you have all the one-dollar groups you want. When you're done, touch enter.		
MV - p. 19: Touch a piece of money as many times as you need. When you're done, touch enter.		
ME - p. 12: Touch the paystub at the correct place.		
MF - p. 2: Touch the order form at the correct place.		
MF - p. 13: Touch the deposit slip at the correct place.		

FINAL

FINAL

April 21, 1989

Linear Measurement
lm1:Units

lm1:1

Host: People use linear measurement all the time without thinking much about it. For instance, when you take a piece of tape off a roll to seal a package, you probably unconsciously estimate how long it should be.	Motion Host, standing in area where he keeps his tools. He has around him tools for measuring, and materials for building shelves.	measuring tools: ruler, yardstick, measuring tape materials for shelves: 1 inch nails, 6 foot boards In background, peg board with assorted tools hanging (hammer, saw).
Host VO: One common unit we use to measure length is the foot. These things, left over from our recent remodelling, are about one foot long.	CU to still of things about a foot long - length of pipe, wire and baseboard (heavy black plastic kind).	pipe wire baseboard (black plastic)
Host VO: Which of these things is about one foot long?	CU to still of surface containing things of different lengths: 2-inch nail, 2-foot metal carpet strip, ~~1-foot piece of molding~~, ball point pen, tack, hammer. Blue-dot question.	large nail ~~meta carpet strip~~ ball point pen hammer [illegible] [illegible]

Audio	Screen	Props, etc.
NARRATOR VO: Touch the blue dot next to the correct answer.		
Host VO: Feedback (hammer) Yes, you got it right. Good job! Incorrect (for carpet strip): No, that's incorrect. A foot is shorter than that. Incorrect (nail, pen, tack): No, that's incorrect. A foot is longer than that.		
Host VO: For things that are less than a foot long, the unit we usually use to measure them is the inch. These things are about 1 inch long. Our instructions tell us to use 1-inch nails.	Still of CU of things an inch long.	**nails, anchors, screws**
Host: This is a neat way of remembering about how long an inch is. See?	Motion On "See?" his finger, now in front of his eyes, bends to reveal the "in between" part of his finger.	
When I need to know how long one inch is, I just look at my pointer, here, between the knuckles and that gives me a pretty good idea of the right length.	Camera closes in further to still of host holding the 1-inch nail up between two knuckles of his pointer finger [?pinky finger -- depends...] (At any rate, the two are	

Audio	Screen	Props, etc.
	about the same length).	
Host VO: Which of these things is about one inch long?	Still of thumbtacks, 2-inch nails, small screwdriver, 1-inch wood screws. Blue dot question.	nails (2 inches) thumbtacks screwdriver (Elaine's) ~~1-inch wood screws~~ Pushpin or paperclip
Feedback: Yes, you got it right. Good job! Incorrect (2-inch nails and screwdriver): No, that's incorrect. An inch is shorter than that. Incorrect (thumbtacks): No, that's incorrect. An inch is longer than that.		
Host VO: Most things won't be exactly one foot or one inch, but somewhere in between a foot and an inch.	Graphic of pipe, screwdriver, baseboard molding	2-foot long pipe 4-inch long screwdriver (Elaine's) 1-foot 1-inch piece of baseboard molding
Host VO: This is 2 feet.	Same graphic. Overlay of "2 feet" appears with voice. (When abbreviations are given, they replace labels that spell out units.)	
Host VO: This is 4 inches.	Label appears.	

Audio	Screen	Props, etc.
Host VO: People often use abbreviations for words they spell frequently. There are 2 abbreviations for foot. "F T period" is one. A small mark that looks like an apostrophe is the other.	Same graphic. Abbreviations appear below 2 feet as host speaks words. 2 ft. 2′	
We have 2 abbreviations for inch, too. "I N period" is one. Marks that look like quotation marks are the other.	Again, abbreviations appear below 4 inches. 4 in. 4"	
This is 1 foot, 1 inch. When something is measured in feet and inches, we give the number of feet first, since feet are larger. Then we give the number of inches. Remember this and it will help you remember which symbol goes where. One mark for feet, it goes first. Two marks for inches, they come second.	Labels 1 ft., 1 in. and 1′ 1" appear.	
Twelve inches make up one foot. Twelve inches, 1 foot. One foot, 12 inches. They are the same.	Graphic of 2 lengths of ceiling trim, identical, one labelled 1 foot and the other, 12 inches, lying horizontally, stacked vertically.	
Host VO: How many inches equal 1 foot?	Text screen. Number bar question.	

Audio	Screen	Props, etc.
Host VO: Feedback: Yes, that's the right answer. You're doing a good job. Incorrect (13 and up): No, that's incorrect. A foot is shorter than that. Incorrect (11 and down): No, that's incorrect. A foot is longer than that.		
Host VO: Are these things the same length?	Graphic labelled 10''. Graphic labelled 1'. Graphics are askew so you can't tell just by looking at them if they're the same length. Blue dot (yes/no) question.	
Feedback (no): Yes, your answer is correct. Keep up the good work. Incorrect (yes): No, you got it wrong. A foot is twelve inches long.		
Host VO: A unit we can use to measure things longer than a foot is the yard. A yard is 3 feet long.	Graphic of door 3 feet wide, labelled: "<----- 1 Yard ------> <----- 3 Feet ------>	
Host VO: Yards are usually used to measure fairly long distances. For instance, we might measure the distance between our house and a	Graphic of two houses.	

Audio	Screen	Props, etc.
neighbor's house in yards.		
Host: Most things we come across, though, we measure in feet, inches, or a combination of feet and inches.	Motion Host on screen with shelf standing on end in front of him.	Shelf board 5', 4" long.
Host: Some things are usually measured in feet and inches and other things, all in inches. But sometimes we need to compare lengths measured in these two different ways.		
Host: For instance, I know this shelf measures 5 feet, 4 inches. I want to buy some trim to go along its edge.	Motion Leans board against counter and runs hand along length of board as he mentions trim.	
Host VO: The trim is sold by the inch at the hardware store. So I need to find out how many inches are the same as 5 feet, 4 inches.	Graphic of shelf labelled 5', 4".	
Host VO: To do this, I need to find out how many inches are in 5 feet, and then add the number of inches from my original measurement, four, to that number.		
Host VO: The first thing I do is remember there are 12 inches in 1 foot.	Graphic screen. "12 inches in 1 foot" plots as narrator voices it.	

Audio	Screen	Props, etc.
Host VO: Next, I write how many feet I am changing to inches, to get the number of inches in those feet. I have 5 feet, so I'll multiply 12 times 5.	Graphic screen. x 5 plots below the 12	
So that's ... 60 inches in 5 feet.	line, 60 inches plots	
Finally, I add my original inches to this number. That's 4 inches to add in	+ 4 plots below the 60	
and that's 64 inches altogether. So I need to buy 64 inches of trim for this shelf.	64 inches plots	
Now you try one.	Text screen. Number bar question.	
You have a board 3 feet, 9 inches long. How many inches of trim do you need altogether?		
NARRATOR: Touch the numbers on the bar to answer. When you're done, touch ENTER.		
Host VO: Feedback: Yes, you got it right. Good job!		

Audio	Screen	Props, etc.
Host VO: Incorrect (for 111): No, that's incorrect. Multiply the number of feet by 12 and then add in the original number of inches. Incorrect (for 39): No, multiply the number of feet by 12, since there are 12 inches in a foot. Then add in the inches. Incorrect (unanticipated): No, that's incorrect. Keep trying.		
Host VO: Sometimes you may know the number of inches but need to change them to feet and inches. For instance, suppose you had a 28-inch piece of pipe.	Graphic of 28" length of pipe.	
Host VO: When you are changing a measurement from smaller units -- like inches -- to larger units -- like feet, you will have fewer of the larger unit. It makes sense, then, that you should divide. We know that there are 12 inches in a foot. So, here, we could divide 12 into 28 to find the number of feet and inches.	"Smaller to larger, divide" plots, with division set-up 2 12) 28 24 4	

Audio	Screen	Props, etc.
Host VO: Of course, a lot of people have trouble with division. So, for a small number, like this, you can always substitute repeated subtraction for division. It works like this:	Graphic screen. division set-up erases need something going on during this voice tho	
To change from inches to feet and inches, we remember that 12 inches is equal to 1 foot. We subtract 12 inches (or 1 foot) at a time, until we have less than 12 to subtract.		
When less than 12 remains, that number is the number of inches left over.		
If we get a zero, at the end of our subtraction, that means there are no inches left over.		
Host VO: Let's do an example. We have 28 inches of this pipe. How many feet and inches is that?	Graphics screen (little graphic of section of pipe). Text: 28 inches plots.	
We ask, Do we have 12 inches or more? We do, so we subtract 12 inches.	- 12 plots ---- 16	
We ask again, Do we have 12 inches or more? Yes, we do, so we subtract 12 inches.	- 12 plots ---- 4	

Audio	Screen	Props, etc.
Host VO: Do we have 12 inches or more? No, we don't. So this number is our remaining number of inches.	Graphic screen. Arrow by 4 at "remaining"	
Now we count the number of times we subtracted 12 inches. One, two. That's 2 feet. And we have 4 inches remaining. 28 inches is the same as 2 feet, 4 inches.	Arrow by 1st "-12" Arrow by 2nd "-12"	
Host VO: Now you try one. This piece of wire is 19 inches long. How much is that in feet and inches?	Graphic/text of question and little graphic of piece of wire (maybe colored, insulated kind). Number bar question.	
NARRATOR VO: Touch the numbers on the bar to answer. The cursor will move automatically from feet to inches. When you're done, touch ENTER.		
Host VO: Feedback (1', 7"): Yes, that's the right answer. You're doing a good job. Incorrect (wrong number of inches): No, that's the wrong answer. Always check your subtraction.		

Audio	Screen	Props, etc.
Host VO: Incorrect (wrong number of feet): No, that's the wrong answer. Always check how many times you subtract 12. Incorrect (unanticipated): No, that's the wrong answer. Try again.		
Host VO: Try one more. This is 33 inches long. How much is that in feet and inches?	Graphic screen, piece of molding labelled 33 inches.	
Feedback (2', 9"): Yes, you got it right. Good job! Incorrect (wrong number of inches): No, your answer is wrong. Always check your subtraction. Incorrect (wrong number of feet): No, your answer is wrong. Always check how many times you subtract 12. Incorrect (unanticipated): No, your answer is wrong. Try again.		

lm2:Choosing an instrument

Audio	Screen	Props, etc.
Host VO: These are some of the standard tools used to measure length.	Graphic of a ruler (12 inches), yardstick (3 feet) and metal measuring tape (10 feet).	
Standard rulers are 1 foot, that is, 12 inches, long. Yardsticks are frequently used to measure things longer than 1 foot, and measuring tapes are generally used when things are longer than 3 feet.	Graphic plots some lengths of instruments.	
Host VO: Measuring tools measure in inches always, and feet sometimes.	Graphic Enlarged yardstick with dual markings.	
Host: The way we actually go about measuring length with any of these is pretty much the same.	Motion Host picks up ruler to measure small piece of wood 8 inches long and lines it up at zero-point as mentioned.	ruler piece of wood 8 inches long.
Host: Here, I'll measure this piece of wood to show you how. You line up the zero-point, almost always the end, with one end of the wood. You find the length by looking at the mark at the other end of the wood.	Motion Points out beginning and end of wood and moves finger to equivalents on ruler.	

Audio	Screen	Props, etc.
Host VO: Where should you start measuring the pipe?	Graphics screen. 5" pipe in middle of screen. Ruler to be placed below and off to one side.	
NARRATOR VO: Touch the pipe at the correct place.		
Host VO: Where should you stop measuring the pipe?	Same graphics screen, but with ruler placed where student had indicated it should go.	
NARRATOR VO: Touch the pipe at the correct place.		
Host VO: Let's say you want to measure this piece of trim. There are a few steps you can follow to help you pick the right tool.	Graphic plots with host voice. of 3 measuring tools and a 2-foot long piece of trim.	
Host VO: First: Roughly estimate how long the thing you're measuring is; Two: Check the lengths of the tools you have. You want to use a measuring tool close to the length of what you're measuring but longer; Three: Compare the estimate you made to the length of the tools you have;	Text screen Plots on right side of screen with host voice: Choosing a measuring instrument 1) Estimate length 2) Check lengths of available tools 3) Compare estimate with lengths of tools	

Audio	Screen	Props, etc.
Host VO: Four: Look at the tools that you think are long enough, and ask yourself which would be easiest to handle.	4) Ask which tool would be the easiest to handle.	
Host: So first, you estimate (or make your best guess about) how long the thing is. Estimating gets easier the more you do it. If you are in a job where you're measuring things all the time, estimating length will become easy for you.	Motion Host of screen, standing behind counter with ruler, yardstick, tape and molding. Tone of voice more confidential, less matter-of-fact as he delivers second sentence.	
Host: I estimate that this trim is about 2 feet long.	Motion Runs hand along molding as he says 2 feet. Go to CU still with molding and instruments on left 2/3s of screen. Video overlay on right, "Estimate length" plots.	
Host VO: Our next step is to check the lengths of the tools we might use. Let's see, our ruler is 1 foot long, our yardstick, 3 feet long and our measuring tape, 6 feet long.	Still closeup on left (same). "Check lengths of tools" plots. Arrow overlays for each tool as they're mentioned.	
Now, we compare the estimated length with the length of our tools. The length of the tool	"Compare estimate with length of tools and reject those too short."	

Audio	Screen	Props, etc.
Host VO: we choose should be greater than our estimate.		
So here, our 1-foot ruler is rejected -- it's too short. But the lengths of these two are both longer than 2 feet, so they're still in the running.	Graphic screen. X overlay is plotted over the 1-foot ruler.	
Host: Next, we look at the practicality of using these two to measure the length. Could either of these be used to measure the trim? Sure, both could do the job.	Same still. Arrows on two remaining scales. "Ask, Which is easiest to handle?" plots.	
Host: Finally, we choose the *best* tool for the job by choosing the one with the length closest to the length we've estimated. For us, the yardstick, which can measure up to 3 feet, is closer than this 6-foot measuring tape to our estimate of 2 feet, so I'll choose *it*. I think I'm finally ready to measure this. Ah, just right. See how the end of the trim falls between the two ends of the yardstick? This was a good choice for a tool.	Motion Host picks up yardstick and lays it alongside the trim. A successful measure, showing the length to be about 2 feet, but not exactly. Then camera pulls back to include the host in the shot.	

Audio	Screen	Props, etc.
Host VO: I think you're ready to try choosing one now. Let's see, to get you started, let's estimate this piece of baseboard is about 9 inches long. Which of these tools is appropriate to measure 9 inches?	Graphic. Blue dot question. Rules remain on the screen on the right. Instruments are graphics and labelled for maximum length. Question plots above instruments. Baseboard labelled 9 inches is below question.	
~~Host VO:~~ Feedback (ruler): Yes, that's the right answer. Good job! Incorrect (anticipated, either larger tool): No, that's incorrect. That instrument will take the measure, but usually it's best to choose the instrument closest in length to what you're measuring.		
Host VO: Here's another one. Suppose we had a piece of pipe. We estimate it's about 4 feet long. Which of these tools is most appropriate for measuring the pipe?	Graphic. Blue dot question. Rules remain on the screen on the right. On left (from top to bottom), is question, the pipe and instruments, labelled.	
~~Host VO~~: Feedback (tape measure): Yes, that's the correct answer. Congratulations! Incorrect (anticipated, either shorter tool): No, that's incorrect. This instrument is too short. You could not		

Audio	Screen	Props, etc.
Host VO: measure the pipe unless you moved the tool.		

25

25

lm3:Reading Measuring Instruments

Audio	Screen	Props, etc.
Host: So now, all we have left in measuring length is reading the actual measurement on the tool. To measure this strip of molding, first I position the molding here so that it lines up with the end of the ruler. Once I've done that I just look at where the other end of the molding comes on the ruler.	Motion Host on screen. Standing by counter with ruler and short piece of molding 9 inches long on counter. Lines up ruler next to piece of molding. Go to closeup of ruler and molding.	Ruler with markings to 1/4 inch, 9 inch strip of decorative molding.
Host: Most tools for measuring length are like this one. Each inch is marked on the instrument. The end of this molding is right at the line for the number 9. So, this strip of molding is 9 inches long.	Motion Host points to end of the piece of molding next to the 9 as he says the length.	
Host VO: How long is this piece of molding?	Still of closeup of new piece of molding 11 inches long and ruler from above. Number bar input.	Ruler with markings to 1/4 inch, 11 inch strip of decorative molding.

Audio	Screen	Props, etc.
~~Host VO:~~ Feedback: Yes, your answer is correct. Keep up the good work. Unanticipated Incorrect: No, that's the wrong answer. Try again. Anticipated incorrect: For ~~Host VO~~: decimal number between 10 and 12, but not including 10, 11, or 12): No, that's the wrong answer. You're close, but the end of the molding is right at a marked number.		
Host VO: You've probably noticed the small lines between each of the inch marks. To read lengths that don't fall right at a number, we have to be able to figure out what part -- or fraction -- of an inch is indicated by the small lines.	Still on left half of screen of ruler. At least two inch marks (7 and 8) and all small lines between the two must be clearly visible. Piece of thick wire is lined up to be measured at 7-3/4 inches.	Props: Ruler with markings to 1/4 inch; Thick colored wire 7-3/4 inches long.
Host VO: Reading a measurement on a ruler, yardstick or measuring tape that's between 2 whole inch numbers -- like this -- is easy once you know the trick. I'll tell you how with a piece of wire and ruler.	Arrows point to 7 and 8 as mentioned. 7 plots when host says to write it down as whole number. Then, at appropriate times, denominator and fraction bar, and numerator plot. Abbreviated form of rules also plotting on right side at same time.	

Audio	Screen	Props, etc.
Host VO: First, you need to locate where the end of the wire comes on the ruler. Here it's between 7 and 8 inches. You write down the smaller number as your whole number. Then count the number of spaces between the two numbers. This is the number of parts -- the bottom part of your fraction. Write that down too, with a fraction bar above it. Next, count the lines between the smaller number that you've written down and the point on the ruler where the end of the wire is. That's the top of your fraction. Write that down too. This number is the length. So the length of this piece of wire is 7 and 3 fourths inches.	Graphic screen. Whole number=Smaller of two numbers around end of object. Bottom number=Number of spaces between smaller number and larger number. Top number=Number of lines between smaller number and end of object.	
Host VO: Now you try. What is the length of the bolt?	Graphic screen. Blue dot question. Foils are 2-2/4, 2-1/2, 3-2/4, 2-3/4.	

Audio	Screen	Props, etc.
Host VO: Feedback: Yes, you got it right. Good job! Incorrect (anticipated, for 3-2/4): No, that's incorrect. The smaller of the two numbers near the end of the bolt is the correct whole number for your measure. Incorrect (anticipated for 2-3/4): No, that's incorrect. Always count the lines for the top of your fraction.		
Host VO: Sometimes the fraction part of a number can be written in a more familiar way. For instance, 2/4 would probably look more familiar to you if we wrote it 1/2. These two fractions means the same thing, but people usually say 1/2.	Same graphic. Right side now plots with 2/4 = 1/2.	
So 2-2/4 = 2-1/2.	2-2/4=2-1/2 plots.	
Do one more. How long is this metal strip?	Graphic of same ruler and metal strip measuring 10 3/4 inches. Blue dot question.	

Audio	Screen	Props, etc.
Host VO: Feedback: Yes, your answer is correct. Keep up the good work! Incorrect for 11-3/4 inches: No, that's the wrong answer. The smaller of the two numbers near the end of the metal strip is the correct whole number for your measure. Incorrect for 10 2/4 inches: No, that's the wrong answer. Always count the lines for the top of your fraction.	Text Screen: Foils are 2, 5, and 10	

Audio	Screen	Props, etc.
Host VO: Of course, not all countries measure the length of things in inches, feet, and yards. In fact, in most places length is measured in units of another system -- the metric system. Its most common length units are centimeters, meters, and kilometers. Usually if you need to measure something using metric units, you will use a ruler or tape which has centimeters -- and maybe meters -- marked on it. So, it's not often that you need to change lengths from one system to another.	Graphic and text screen. With units of the Traditional length system on left. Metric system and its units plot on right as mentioned.	
Host VO: But, there are a couple of rough estimates about how metric length compares to our usual length measurements that are useful to keep in mind. First, a meter is about the same length as a yard -- just a little bit longer. So, if you remember how long a yardstick is, you have a very good idea about the length of a meter.	Graphic screen. Long rectangle labelled "1 meter" plots. Then slightly shorter rectangle labelled "1 yard" plots right next to it.	

Audio	Screen	Props, etc.
Host VO: A centimeter is very short -- less than half as long as one of our inches. In fact, it takes one hundred centimeters to equal one meter.	Graphic screen. Yardstick erases. Meter stick remains. 99 little lines plot. 100 centimeters = 1 meter plots.	
Host VO: The kilometer is the longest metric unit. Kilometers are used for measuring long distances -- like our mile. It takes one thousand meters to equal one kilometer.	Graphic screen. Abstract tree and mountain. Line between tree and beginning of mountain, labelled 1 kilometer. Then, = 1000 meters plots at appropriate time.	

Audio	Screen	Props, etc.
Host VO: But, a kilometer is not as long as a mile. In fact, one kilometer is only as long as about 2/3 of one mile. Whicn unit is about the same length as a meter? Feedback (correct): Yes, that's the right answer. You're doing a good job. Incorrect (anticipated, for centimeter): No, that's the wrong answer. A centimeter is even shorter than an inch. Incorrect (anticipated for kilometer) No, that's the wrong answer. A kilometer is the same as one thousand meters. Incorrect (anticipated for inch) No, that's the wrong answer. An inch is much shorter than a meter. How many centimeters equal one meter? Feedback (correct): Yes, that's the right answer. You're doing a good job.	Graphic screen. Same as above. Another line from tree to far end of mountain plots, labelled 1 mile.	

Audio	Screen	Props, etc.
Incorrect (anticipated for 10 and 50): No, that's the wrong answer. Think. It takes 100 cents to make a dollar. It takes one hundred centimeters to make a meter.		
Host VO: How many meters equal one kilometer?	Text screen. blue dot multiple choice	
Feedback (correct) Yes, that's the correct answer. Congratulations!		
Incorrect (anticipated) No, remember, a kilometer is used to measure long distances. A meter is only about as long as a yardstick.		
Incorrect (unanticipated) No, that's incorrect. Keep trying.		
Is a mile longer than a kilometer?	Text screen. blue dot yes-no question.	
Feedback (correct): Yes, that's the right answer. You're doing a good job.		

Audio	Screen	Props, etc.
Incorrect (anticipated) No, that's the wrong answer. A kilometer is shorter than a mile. It's about as long as 2/3 of a mile.		

Audio	Screen	Props, etc.
	cm5:Linear quiz	
Host VO: 1) Which of these is about a foot long?	Still of 8 inch pair of needle-nosed pliers, a medium sized screwdriver (about 1 foot), a handle for a drawer. Blue dot question.	bolt (Kate) screwdriver (Kate) handle (Kate)
2) How many inches are in a foot?	Text screen. Number bar question.	
3) Which of these abbreviations means 2 feet and 7 inches?	Text screen. Blue dot question. Choices are: 2" 7′ 2′ 7" 7" 2′ 7′ 2"	
4) Which pipe is longest?	Graphic of three lengths of pipe, one labelled 2 feet, 2 inches, one labelled 24 inches, one labelled 25 inches. Blue dot question.	Lengths of pipe, close in size, labelled one in feet and inches, the others in all inches (colored, brass, other than silver).
5) You estimate a board is about 2 feet long. Which measuring tool is most appropriate for finding the exact length of this board?	Graphic. Blue dot question.	
		5) How much is 4 feet, 10 inches in inches?Number bar question. Text screen.

Audio	Screen	Props, etc.
Host VO: 6) How much is 35 inches in feet and inches?	Text screen. Number bar question.	
7) You estimate a bolt id about 4 inches long. Which measuring tool is most appropriate to use for measuring this bolt?	Graphic screen. Blue dot question. Instruments are ruler, yard stick, measuring tape.	
8) Where should you start measuring the length of the bolt?	Graphics screen. Touch once question.	
9) What is the length of this bolt?	Graphic screen. Blue dot question. Graphic of 3-3/4 inch bolt against ruler on left side. Space from 2-1/2 to 4-3/4 inches must be clearly visible.	
10) What is the length of this piece of molding?	Graphic screen. Blue dot question. Graphic of 6-1/2 inch piece of decorative trim against ruler on left side. Space from 5 to 8 inches must be clearly visible.	
11) What metric unit is about the same as a yard?	Text screen. Blue dot question.	
12) What metric unit is about the same as 2/3 of a mile?	Graphic screen. Blue dot question.	

MEASUREMENT GEOMETRY SCRIPT

AUDIO	SCREEN	PROPS, ETC.
HOST: Frequently, at work, scale drawings are used to show the size of something that is really much bigger. Maps are one kind of scale drawing. Blueprints like the ones the architect used when he remodelled the restaurant are another - very detailed -- kind of scale drawing. I picked these scale drawings up yesterday when I went to look for a new apartment. They call these floorplans. They're a lot like a blueprint. They show the size of the rooms. But they're not as detailed as a builder's blueprint. Some scale drawings -- like **this** floorplan -- don't actually have the dimensions written on them. They use a **"key"** instead.	MOTION HOST ON SCREEN. He is near his desk, so he can reach out and touch the map, blueprint, and scale drawings in turn as he talks about them. He puts a scale drawing with the scale 1 inch = 2 feet down on his desk (or counter). Closeup of the drawing as he points to the "key". End with closeup of scale drawing of apartment.	PROPS: Road map; ~~blueprint~~; scale drawings of apartment floorplans; desk, table, or counter (in descending order of preference); desk accessories.

NOTE: AT THIS POINT, WE COULD JUMP OVER ALL OF THE LINES BETWEEN THE 2 SETS OF #### AND NOT DO ANYTHING USING KEYS SINCE IT IS NOT IN THE ASSESSMENT. HOWEVER, REALISTICALLY, THE KEY IS THE MORE COMMON WAY OF MARKING SCALE DRAWINGS AND OVER HALF OUR REVIEWERS FELT THAT THESE STUDENTS SHOULD BE ABLE TO READ SCALE DRAWINGS AND/OR MAPS.

####

AUDIO	SCREEN	PROPS, ETC.
VO: This key shows how long the real thing is compared to how long it is on the drawing. On this floorplan, the key says 1 inch = 2 feet. That means that if a wall is 1 inch long on the drawing, it's really 2 feet long. If it's 2 inches long on the drawing, it's really 4 feet long. Finding out how long something really is from a scale drawing is pretty easy -- once you know the **rule**. **First**, figure out how long the real thing would be for **one** inch on the drawing. **Then, multiply** that by the number of inches long it is on the drawing.	GRAPHIC OF FLOORPLAN ON LEFT with scale 1"= 2 ft. **Window containing text of rule opens up on right side of screen** as he speaks the rule.	PROPS: None
VO: How long is the wall that is 6 inches long on this floorplan?	GRAPHIC OF FLOORPLAN ON LEFT WITH SCALE 1"=2' with one wall 6 inches long marked as being 6 inches long. RULE on screen from before. NUMBER BAR INPUT. (Note: instead of labeling these in inches, we could show a ruler lined up next to the thing in question. This is more like what you would really do.) Question plots below rule.	PROPS: None
NARRATOR: Touch the numbers on the bar to answer. When you're done, touch enter.		

AUDIO	SCREEN	PROPS, ETC.
FEEDBACK: FOR CORRECT RESPONSE: Yes, that's the right answer. You're doing a good job. FOR INCORRECT UNPREDICTED RESPONSE: No, that's incorrect. Keep trying. FOR INCORRECT PREDICTED RESPONSE: For 6, No, that's incorrect. Remember each inch on this drawing stands for 2 feet, not 1 foot.		
VO: Now you can use our rule to figure out how long the longest wall in the living room on this **other** floorplan is. The "key" says that one half inch equals 5 feet. How long is the wall that is 3 inches long on the floorplan.	GRAPHIC OF FLOORPLAN WITH SCALE 1/2" = 5 FEET. Long wall of living room-dining room L is marked as being 3 inches long on the drawing. RULE remains on screen. Question plots below rule. NUMBER BAR INPUT.	PROPS: None
FEEDBACK: FOR CORRECT RESPONSE: Yes, that's the correct answer. Congratulations! FOR INCORRECT UNPREDICTED RESPONSE: No, you got it wrong. Good luck next time. FOR INCORRECT PREDICTED RESPONSE: For 15, No, that's incorrect. Remember each 1/2 inch on this drawing stands for 5 feet. That means that each inch stands for 10 feet.		

####

AUDIO	SCREEN	PROPS, ETC.
VO (if we skip from beginning and don't do keys): But some -- like this floorplan....	GRAPHIC of floorplan of part of apartment described directly below. Arrow plots to point out 20 ft. long wall.	PROPS: None
VO (if we do key drawings): Some floor plans -- like this one --		
VO ~~HOST~~ (continued): ...actually have at least some of the measurements written right on them. I really like these because you can read a measurement right from the drawing without having to figure anything out. So here I can look at this drawing and know that this wall is 20 feet long. Sometimes -- so that the drawing doesn't get too cluttered -- not all the measurements are written. But, there's a little rule that you can ue when the drawing is made up of squares or rectangles -- like this one is.		

AUDIO	SCREEN	PROPS, ETC.
VO: The **rule** is that on squares and rectangles the sides that are opposite each other are always the same length. Because of this rule, if you know one side, you also know the length of the side opposite it. The two walls marked in red here are opposite each other. And the two walls marked in yellow are opposite each other. However, a red wall can't be **opposite** a yellow wall, because the yellow and red walls **touch** each other. We already know that one of the red walls is 20 feet long.	GRAPHIC OF PART OF APARTMENT ON LEFT SIDE WITH LIVING ROOM 20 FEET LONG. Red lines (windows) plot as he mentions them. Yellow lines (windows) plot as he mentions them. Rule plots as he says it: Any 2 sides on a rectangle that don't touch are the same length.	PROPS: None
VO: What is the length of the wall that has no number marked next to it.	SAME GRAPHIC AS IMMEDIATELY ABOVE. Rule remains. Question plots below rule. NUMBER BAR INPUT.	PROPS: None
FEEDBACK: FOR CORRECT RESPONSE: Yes, your answer is correct. Keep up the good work. FOR INCORRECT UNANTICIPATED RESPONSE: No, that's the wrong answer. Try again. FOR INCORRECT ANTICIPATED RESPONSE: For 10 or 7, No, you got it wrong. You looked at the wall **next** to the wall marked 20 feet. You should have looked at the one **across** from it.		

AUDIO	SCREEN	PROPS, ETC.
VO: Look at the drawing one more time. You probably notice that at one end of the living room, the wall is marked as being 10 feet long, but at the other end, it's marked as being only 7 feet long. At first this might seem to disagree with our rule. But, it really doesn't. It's just that there's a doorway separating the living room from the hallway. The actual wall down at floor level -- which is what a **floorplan** shows -- is only 7 feet long. The other 3 feet are taken up by the doorway. Of course, this doesn't change the size of the room. It's still 20 feet long and 10 feet wide.	SAME GRAPHIC AS ABOVE EXCEPT THAT NOW THE LINES (WINDOWS) ARE GONE so that doorway and walls are clearly visible.	PROPS: None
VO: It's really useful to know how to read scale drawings like these. When we remodelled the restaurant a few months ago, I carefully made a scale drawing of the dining room. Then, when we needed to figure out how much carpeting, paint, wallpaper and molding to order, we just looked at the drawing. That way, we didn't have to measure again each time we ordered something.	GRAPHIC - Same as described below.	PROPS: None

AUDIO	SCREEN	PROPS, ETC.
VO: When we needed to figure out how much new baseboard molding to order to go around the whole dining room, we could look at our drawing and just add up the lengths of the walls. We didn't have to worry about the size of the doorways or anything because there wasn't any baseboard molding in the doorways.	GRAPHIC OF RESTAURANT DINING ROOM ON LEFT 30 FEET LONG AND 15 FEET WIDE with 2 doorways - 1 to kitchen 6 feet wide and 1 customer entrance 5 feet wide on adjacent walls.	PROPS: None
VO: How much baseboard molding was needed for the dining room?	SAME GRAPHIC AS IMMEDIATELY ABOVE. Question plots on right. NUMBER BAR INPUT.	PROPS: None
FEEDBACK: FOR CORRECT RESPONSE: Yes, you got it right. Good job! FOR INCORRECT UNANTICIPATED RESPONSE: No, that's the wrong answer. Try again. FOR INCORRECT ANTICIPATED RESPONSE: If they answer 90 feet, No, your answer is incorrect. Remember they didn't need baseboard molding in the doorways.		

AUDIO	SCREEN	PROPS, ETC.
VO: When I wanted to order the wallpaper border that goes up near the ceiling, at first I thought that I'd need the same length of that as I needed of the baseboard molding. Luckily, my cook's helper Marcy realized that the doorways don't go all the way up to the ceiling, and that I really needed to order enough to go **around** the **whole room**.	HOST ON SCREEN. Holding a sample of the wallpaper border they used in the dining room. Standing near a doorway and spreading out a short section of the border above the doorway. Gesturing to indicate the perimeter of the room at ceiling level.	PROPS: Roll of wallpaper border suitable for use in restaurant dining room.
VO: How much of the wallpaper border was needed for the dining room?	GRAPHIC OF RESTAURANT DINING ROOM FROM BEFORE. Question plots on right. NUMBER BAR INPUT	PROPS: None
FEEDBACK: FOR CORRECT RESPONSE: Yes, your answer is correct. Keep up the good work. FOR INCORRECT UNANTICIPATED RESPONSE: No, that's incorrect. Keep trying. FOR INCORRECT ANTICIPATED RESPONSE: If they answer 79 feet, No, that's the wrong answer. Remember, the doorways don't go all the way to the ceiling. They needed enough to go around the **whole** room -- including above the doorways.		

AUDIO	SCREEN	PROPS, ETC.
VO: After we figured out how many **feet** of the wallpaper we needed, we still had to figure out how many **rolls** to order. Each of the rolls was 30 feet long. So, when we figured out how many rolls to order, we had to find out how many 30 foot lengths there are in 90 feet. To do this I just divided 30 into 90.	GRAPHIC OF THE WALLPAPER ROLL WITH 30 FEET WRITTEN ON IT ON LEFT. Following text plots on right as it is mentioned: 90 feet of wallpaper border were needed. Each roll was 30 feet long. To find the answer you can divide	PROPS: None
VO: But you could also use my repeated subtraction method. It works like this. I begin by subtracting 30 from 90 -- like this. I'm left with 60 -- which is more than 30 -- so I can subtract 30 again. Then, I'm left with 30 -- so I can subtract 30 again. Then I end up with 0, so I can't subtract 30 again. Finally, I just count up the number of times that I subtracted. One, two, three. I subtracted 3 times. That means that there are 3 whole 30 foot long rolls of wallpaper border needed.	GRAPHIC OF THE WALLPAPER ROLL WITH 30 FEET WRITTEN ON IT ON LEFT. Text from before remains. Then this text plots below: Or use repeated subtraction.	PROPS: None
VO: How many 25 foot rolls of the wallpaper border were needed for the waiting room if 150 feet were needed altogether?	GRAPHIC OF NEW WALLPAPER BORDER ROLL WITH 25 FEET WRITTEN ON IT ON LEFT. Question plots on right below info from before. NUMBER BAR INPUT.	PROPS: None

AUDIO	SCREEN	PROPS, ETC.
FEEDBACK: FOR CORRECT RESPONSE: Yes, that's the correct answer. FOR INCORRECT UNANTICIPATED RESPONSE: No, your answer is incorrect. Keep trying. FOR INCORRECT ANTICIPATED RESPONSE: If they answer 5 rolls, No, that's incorrect. The wallpaper used in the waiting room only had 25 feet on each roll. If they answer 25, No, that's incorrect. 25 rolls would be 625 feet. They only needed 150 feet.		
VO: When I was ready to order carpet for the dining room, the first thing I did was figure out how much to order. What I really needed to know was **how much floor had to be covered**. Since I had my drawing -- that had the length and width of the room in feet on it -- I figured it out from that. Doing it was easy because I remembered the **rule** for figuring out surface area. The **rule** is that to find the area of any **rectangle**, you just **multiply its length by its width**.	GRAPHIC OF DINING ROOM FROM EARLIER ON LEFT. As the rule is mentioned, a window with its text appears on right.	PROPS: None

AUDIO	SCREEN	PROPS, ETC.
VO: This gives a measurement in square feet. A square foot is just a square that is 1 foot long on each side. I could have drawn lines on my diagram like this and then counted the little squares. But that would have taken a very long time. It's much easier just to use the **rule** to figure out how many square feet there are in an area.	SAME GRAPHIC AS IMMEDIATELY ABOVE ON LEFT. Rule remains on right. As little squares are mentioned, lines plot at each foot to produce 450 little squares.	PROPS: None
VO: How many square feet are there in the dining room?	SAME GRAPHIC AS IMMEDIATELY ABOVE. Except little lines that produced square are gone. Rule box remains. Question plots below rule. NUMBER BAR INPUT.	PROPS: None

AUDIO	SCREEN	PROPS, ETC.
FEEDBACK: FOR CORRECT RESPONSE: Yes, your answer is correct. FOR INCORRECT UNANTICIPATED RESPONSE: No, that's the wrong answer. Try again. FOR INCORRECT ANTICIPATED RESPONSE: If they answer 45 square feet, No, that's incorrect. You're multiplying 15 times 30, not 15 times 3. If they answer 90 or 79, No, that's incorrect. You're trying to find the number of square feet in the room, not the distance around. You need to **multiply** its length by its width. If they answer an answer which indicates they used a partial wall in their multiplication, No, that's incorrect. You need to use the full length and full width of the room when you multiply -- not the lengths of the walls that have doorways. The carpet will also have to go in front of the doorways.		

AUDIO	SCREEN	PROPS, ETC.
VO: Actually the carpet was sold in square yards -- not in square feet. So, we needed to find the number of square yards that is the same as 450 square feet. Ben, one of my waiters, thought that -- since there are 3 feet in a yard -- there are also 3 square feet in a square yard. But I showed him that that wouldn't work by drawing a little sketch of a square yard. Since each side is 1 yard long, then each side is also 3 feet long. So, there are actually 9 square feet in each square yard.	SAME BASIC GRAPHIC AS IMMEDIATELY ABOVE. But next to it -- on right -- there is a square to represent 1 square yard. Lines plot to show square feet as it is discussed.	PROPS: None
VO: Here we wanted to change our measurement from a smaller unit to a larger unit -- that is square feet to square yards. A lot of people have a hard time remembering whether to multiply or divide to do this. What I always tell my employees is: If you are changing a measurement from smaller units -- like square feet -- to larger units -- like square yards, you will have **fewer of the larger unit**. It makes sense then that you should **divide**. We know that there are 9 square feet in a square yard. So we just divide 9 into 450 to find the number of square yards. Of course, a lot of people have trouble with division.	GRAPHIC OF WHATEVER YOU'RE TALKING ABOUT ON LEFT. Smaller to Larger -- Divide plots on right.	PROPS: None

AUDIO	SCREEN	PROPS, ETC.
VO: So, for a small number, you can always use my repeated subtraction substitute for division. But, for a large number like this -- if someone doesn't feel comfortable with long division -- I recommend a calculator.	GRAPHIC FROM ABOVE. Also text from above. Then this text plots: Three ways to get your answer: Long Division; Calculator.	PROPS: None
VO: But, for a fairly small number -- like say 45 square feet -- I show them my substitute for division -- I call it repeated subtraction. It works like this. Say I wanted to change 45 square feet into square yards. I know that there are 9 square feet in each square yard, so I begin by subtracting 9 from 45 -- like this. I'm left with 36 -- which is more than 9 -- so I can subtract 9 again. Then, I'm left with 27 -- so I can subtract 9 again. I keep doing this until I end up with a number less than 9. Here I end up with 0, so I can't subtract 9 again. Then, I just count up the number of times that I subtracted. One, two, three, four, five. I subtracted 5 times. That means that there are 5 whole square yards in 45 square feet.	GRAPHIC OF RECTANGLE WITH "45 SQUARE FEET" IN CENTER ON LEFT SIDE. Also text from above. Then this text plots: Repeated Subtraction. Then numbers plot as they are mentioned.	PROPS: None

AUDIO	SCREEN	PROPS, ETC.
VO: How many square yards of carpet did we need to order to cover the coatroom floor. The area of the coatroom is 72 square feet.	GRAPHIC OF RECTANGLE WITH "72 SQUARE FEET" IN CENTER ON LEFT SIDE. RULE AND ALTERNATIVE METHODS FROM BEFORE REMAIN ON THE SCREEN. REPEATED SUBTRACTION CALCULATION GOES. Question plots in space where calculation was. NUMBER BAR INPUT.	PROPS: None
FEEDBACK: FOR CORRECT RESPONSE: Yes, that's the right answer. You're doing a good job. FOR INCORRECT UNANTICIPATED RESPONSE: No, that's incorrect. Try again. FOR INCORRECT ANTICIPATED RESPONSE: If they answer 648, No, your answer is incorrect. You multiplied by 9. If 24, No, your answer is incorrect. You divided by 3.		
SCRIPT FOR QUIZ VOICE:		
1) **NARRATOR**: How long is the wall that is 5 inches long on this floorplan?	GRAPHIC OF FLOORPLAN WITH SCALE 1"=2' with one wall 5 inches long marked as being 5 inches long (or with ruler lined up next to it). NUMBER BAR INPUT.	
2) **NARRATOR**: How long is the side of the fence that is 4 inches long on the drawing?	GRAPHIC OF FLOORPLAN WITH SCALE 1/2" = 5 FEET with one side 4 inches long marked as being 4 inches long (or with ruler lined up next to it). NUMBER BAR INPUT.	

AUDIO	SCREEN	PROPS, ETC.
3) **NARRATOR**: What is the length of the wall that has no length marked next to it.	GRAPHIC OF PART OF A FLOORPLAN WITH 3 WALLS OF A ROOM MARKED AND A ? NEXT TO ONE WALL. ROOM MEASURES 25 FEET BY 35 FEET. NUMBER BAR INPUT.	
4) **NARRATOR**: How much baseboard molding would you need to replace all the baseboards in this room?	SAME GRAPHIC AS IMMEDIATELY ABOVE WITH ? REPLACED BY ACTUAL NUMBER. THERE IS ONE DOORWAY 7 FEET WIDE. NUMBER BAR INPUT.	
5) **NARRATOR**: How much of the wallpaper border would you need to paper this room at ceiling level?	SAME GRAPHIC AS IMMEDIATELY ABOVE. NUMBER BAR INPUT	
6) **NARRATOR**: How many 20 foot long rolls of wallpaper border would you need if you needed 120 feet altogether.	SAME GRAPHIC AS IMMEDIATELY ABOVE. NUMBER BAR INPUT.	
7) **NARRATOR**: How many **square** feet are there in **this** room?	NEW GRAPHIC OF ROOM 18 FEET BY 10 FEET. ONE DOORWAY 3 FEET WIDE. NUMBER BAR INPUT.	
8) **NARRATOR**: How many square yards of carpet would you need to cover the floor in a closet with an area of 54 square feet?	GRAPHIC OF RECTANGLE WITH 54 SQUARE FEET IN CENTER. NUMBER BAR INPUT.	

Audio	Screen	Props, etc.
April 21, 1989	cm1:Units	cm:1
Host: We use capacity measurement all the time in our cooking here at the restaurant. You use it too, even though you might not be familiar with the word "capacity". If you've ever cooked, poured a glass of juice or bought a gallon of milk, you've worked with capacity measurement.	Motion Host, surrounded by colorful liquids, measuring cups and spoons and bowls for pouring between.	Colorful liquids in clear ✓pitchers: orange juice tomato juice or ketchup molasses Colorful solids: ✓corn meal baking soda paprika Containers: ✓measuring cup set ✓measuring spoon set Bowls: several of different sizes
Capacity is the term we use when we're working with liquids, and solids you can pour.	Picks up corn meal and 1-cup measure, brings to chest level and begins to pour, illustrating what's meant by pourable solids.	
-- it refers to how much of something a measure (a measuring cup or spoon) can hold.		

Audio	Screen	Props, etc.
Host VO: The cup is the most commonly used capacity measure in cooking. There are measures smaller and larger than a cup.	Graphic of cup (clear graduated cup) in the middle. Graphics of smaller measuring instruments (silver) plot above it (at "smaller"), and graphics of larger measuring instruments (blue), below it at words "larger". They are each labelled and they plot in this order: teaspoon, tablespoon, ounce (as 1/8th of cup) pint, quart, gallon.	
Let's look at measures smaller than a cup first.	Measures smaller than the cup get a box drawn around them which brightens then dims.	
The smallest whole measure we use is the teaspoon. A measuring teaspoon is about the same size as the spoon you use to stir your tea.	Graphics erase. Teaspoon graphic replots in the center of the screen. Maybe a breakfast table setting plots (place mat, flowers on the table), sun rising through a window. Or, maybe just setting, all in black and white except for spoon.	

Audio	Screen	Props, etc.
Host VO: Three teaspoons equal one tablespoon. A measuring tablespoon is about the same size as the bigger spoons you use for eating soup.	Graphics for 2nd and 3rd teaspoon plot. Equal sign. Tablespoon. Ditto settings for teaspoon but with steaming bowl of soup.	
And two tablespoons equal one fluid ounce.	Graphics. Plots 2nd Tablespoon. Equal sign. Graduated measuring glass appears on right (graphic is side-view so measurement is clear) full of one ounce colored liquid. Ounces are marked on the glass, but not fractions of a cup.	
Finally, 8 fluid ounces equal one cup.	Spoons and ounce disappear, and 1-ounce graphic replots in upper left of screen and duplicates rapidly in (1) 2 3 8 4 7 6 5 (like in one of those commercials?) And in the middle appears the measuring glass full of 8 ounces.	

Audio	Screen	Props, etc.
Host VO: These are the whole measures less than a cup in capacity. I remember how they fit together by saying "3-2-1 blastoff". Three teaspoons make a tablespoon; two tablespoons make an ounce. One ounce ... uh ... [more hurriedly] Well, that's as far as that goes. It's not a perfect way to remember, it's just one way to remember. 3-2-1 blastoff. I've never forgotten it. The blastoff part is 8 ounces equal a cup. Eight is a lot more than just a few, right? And if you've got one of those glass measuring cups around, you can always read it from the markings, too.	Graphics reappear from top to bottom of screen with labels. 3 teaspoons = 1 tablespoon 2 tablespoons = 1 ounce 8 ounces = 1 cup	
Those are the measures less than a cup-- the teaspoon, Tablespoon and ounce.	Graphic previously of all measures. Maybe box or underline, as their names are called.	

Audio	Screen	Props, etc.
Host VO: How many teaspoons equal one Tablespoon?	**Repetitive touches question. Graphic of teaspoon to left of question.**	
========================= **NARRATOR VO:** Touch the spoon as many times as you need. When you're done, touch ENTER. =========================		
Feedback (3): Yes, that's the right answer. Congratulations! Incorrect (2, 8): No, that's the wrong answer. Remember 3-2-1 blastoff. Incorrect (unanticipated): No, that's the wrong answer. Try again.		
Host VO: How many tablespoons equal one ounce?	**Repetitive touches question. Graphic of ounces to left of question.**	
========================= **NARRATOR VO:** Touch the spoon as many times as you need. When you're done, touch ENTER. =========================		
Host VO: Feedback (8): Yes, you got it right. Good job!		

Audio	Screen	Props, etc.
Host VO: Incorrect: No, you got it wrong. Remember, 3-2-1 blastoff. Incorrect (unanticipated): No, you got it wrong. Good luck next time.		
How many ounces equal one cup?	Graphic screen. Blue dot question. Foils are 2, 3, 4.	
NARRATOR VO: Touch the blue dot next to the correct answer.		
Feedback (correct): Yes, that's the right answer. You're doing a good job. Incorrect (2 or 3): No, your answer is incorrect. Remember 3-2-1 blastoff. Incorrect: No, your answer is incorrect. Keep trying.		

Audio	Screen	Props, etc.
Host VO: Now let's look at the cup and measures greater than a cup -- they are the pint, the quart and the gallon.	Graphic screen. Screen of all the measuring instruments is replotted.	
	The cup and instruments greater than a cup get boxed and the box brightens.	
A cup is 8 ounces. You've probably read this on the small milk cartons you get at school.	Graphics erase. Clear cup plots, then equal sign plots, then milk carton graphic.	
	[Equivalents will be done using milk cartons, since most kids are familiar with them from school lunches. Milk cartons are all clearly labelled and will be drawn to scale.]	
The next larger measure is the pint. Two cups equal one pint. This is the amount of milk you get in this slightly larger milk container, twice the size of the cup container.	Green and glass cups erase. 2nd milk carton plots. Equal sign, 1 pint-sized milk carton.	

Audio	Screen	Props, etc.
Host VO: Two pints equal one quart.	Pint of milk is replotted on the left, joined by a 2nd, equal sign, 1 quart.	
Finally, four quarts equal 1 gallon. We can buy milk in gallons, too.	4 quarts of milk in graphics plot, equals, gallon of milk.	
I remember how these larger measures fit together this way: 2 plus 2 is 4. 2 cups are in a pint; 2 pints are in a quart; 4 quarts are in a gallon. See? 2 + 2 is 4.	2 + 2 = 4 is at the top of the screen. Then graphics plot illustrating the relationships. Two cups = pint; 2 pints = quart; 4 quarts = gallon.	
How many cups equal one pint?	Repetitive touches question. Milk carton graphic to left of question.	
Host VO: Feedback (correct): Yes, that's the right answer. Congratulations! Incorrect (for 4): No, that's the wrong answer. Remember 2+2=4. Incorrect (unanticipated): No, that's the wrong answer. Try again.		

Audio	Screen	Props, etc.
Host VO: How many pints equal one quart?	Graphic screen. Repetitive touches question. Pint milk carton graphic to left of question.	
Feedback (2): Yes, that's the right answer. You're doing a good job. Incorrect: No, your answer is incorrect. Remember, 2+2=4.		
How many quarts equal one gallon?	Graphic screen. Repetitive touches question. Quart milk carton graphic to left of question.	
Feedback (4): Yes, you got it right. Good job! Incorrect: No, you got it wrong. Remember 2+2=4.		
Once you know these capacity basics, it's not hard to figure out other equivalencies.		

Audio	Screen	Props, etc.
Host VO: Suppose, for example, you have a pint measuring glass, and you need a gallon of chicken broth for some soup you're making. You recall that there are two pints in a quart, and four quarts in a gallon. To find how many pints a gallon contains, then, you multiply the 2 pints in a quart by the 4 quarts in a gallon. Two times 4 is 8, so you get 8 pints equals 1 gallon.	Graphic screen: Some visual representation.	
How many ounces are in a quart?	Number bar question. Text how many ounces are in a quart? and text 8 ounces = 1 cup 4 cups = 1 quart is on bottom of screen, followed by a ______ ounces for student to fill in.	
======================== NARRATOR VO: Touch the numbers on the bar to answer. When you're done, touch ENTER. ========================		

Audio	Screen	Props, etc.
Host VO: Feedback (32): Yes, your answer is correct. Keep up the good work. Incorrect (8, 16): No, that's incorrect. There are 8 ounces in a cup, two cups in a pint and two pints in a quart. Incorrect (unanticipated): No, that's incorrect. Keep trying.		

Audio	Screen	Props, etc.
	cm2:Choosing Measuring Instruments	
Host: You have probably noticed there are different types of measuring instruments. The first kind is made of clear plastic or glass and marked with different quantities on its side. The other kind is made of plastic or metal and marked with just one amount. Let's look at a glass measuring cup first.	Motion Host at counter with a 1-cup clear glass measuring cup, a set of measuring spoons and a set of 1/4, 1/3, 1/2 and 1 cup plastic cups (Elaine's green ones). Host points out each to camera.	1-cup graduated measuring cup set of green plastic cup measurers set of measuring spoons
Host VO: Glass measuring cups are used for liquids -- milk, molasses, or maple syrup. The most common ones measure one cup, one pint or one quart.	Graphic of glass measuring cup on a counter or some sort of surface.	
Host VO: They can be used to measure any amount up to their capacity -- you just look at the markings on the side. It's best to look through the glass at eye-level rather than from above, so you can look right at the marking and get an accurate	Same graphic, now filled with liquid to half its capacity. Head (profile, or eye) appears with dashed line from the eye to the top of the liquid.	

Audio	Screen	Props, etc.
VO: measure.		
Host VO: These other cups and spoons have just one measure. They are used to measure dry things like flour and sugar and very thick liquids like cottage cheese or yogurt.	Graphic of dry things, labelled Flour, Sugar, Cottage cheese, with measuring cups in the foreground, next to each other but not lined up, and a set of measuring spoons bundled together.	
They usually come in sets, cups with one fourth, one third, one half and one cup measurements, and spoons with 1/4 teaspoon, 1/2 teaspoon, 1 teaspoon, and 1 Tablespoon. To use these measures, you fill them up to the top and then run a knife across the top to get just the right amount. The reason these measuring tools come in 1/4 and 1/2 sizes is that recipes use those measurements a lot.	Graphic screen: measurers, flour. Three graphics of cup measurer full of flour: - scooping flour from canister, - with knife levelling off, - with knife at side, showing flattened top	
Which of these cups is most appropriate for measuring 1 cup of cream?	Graphics screen. Blue dot question. 1 cup glass graduated container and 1 cup plastic, non-graduated.	

Audio	Screen	Props, etc.
Host VO: Feedback (glass): Yes, your answer is correct. Keep up the good work. Incorrect (green): No, that measure is used for solids and thick liquids.		
Which of these cups is most appropriate for measuring 1 cup of graham cracker crumbs?	Graphics screen. Blue dot question. 1 cup glass graduated container and 1 cup plastic, non-graduated.	
Feedback (green): Yes, you got it right. Good job! Incorrect (clear): No, that measure is used for liquids.		
Which of these cups is most appropriate for measuring 1 cup of cottage cheese?	Graphics screen. Blue dot question. 1 cup glass graduated container and 1 cup plastic, non-graduated.	
Feedback (green): Yes, that's the correct answer. Congratulations! Incorrect (clear): No, your answer is incorrect.		

Audio	Screen	Props, etc.
Host VO: Choosing a measuring cup is easy once you know how. You already know that the glass cups are for liquids and the other cups for solids and very thick liquids. Generally, you'll want to choose just one -- it just saves dishwashing time.	Graphic of set of "single-measure" ie non-graduated measuring cups.	
This is the rule for choosing which to use. Choose the one that will need to be filled the fewest times, but will come out evenly to the amount you need.	Rule plots on screen: Choose the one that you can fill - the fewest times and - will come out evenly.	
For example, suppose you need to measure three-fourths of a cup of sugar. If you choose the 1 cup measure and don't fill it full, you won't get an accurate measure. If you choose the 1/2 cup measure, you'll have to use the 1/4 cup measure, too. If you choose the 1/4 cup measure, and fill it 3 times, you will get	Graphics screen (recipe with line for 3/4 cup sugar highlighted) and measuring cups. 1 cup measure, filled not full, x'd out. 1/2 cup measure, joined by 1/4 cup measure, x'd out. 1/4 cup measure, filled, plotted three times, box around it. Maybe arrow or word "Yes!" by it.	

Audio	Screen	Props, etc.
Host VO: an accurate measurement and only use one of the cups.		
Now you try one. Which cup is most appropriate to use to measure 3 cups of flour?	Blue dot question. Measuring cups laid out and dotted. Graphic of bag of flour.	
Feedback: Yes, that's the right answer. You're doing a good job. Incorrect (1/2 cup, 1/3 cup, 1/4 cup): No, that's incorrect. You want the cup that you'll have to fill the fewest times.		
Host VO: Which cup is most appropriate to use for measuring 1 and 1/2 cups of oats?	Graphic screen. Blue dot question. Measuring cups laid out and dotted. Graphic of bag of oats. ? Canister like quakers?	
Feedback: Yes, you got it right. Good job! Incorrect (1 cup, 1/3 cup): No, your answer is incorrect. You want a cup that will give you exactly the measure you need. Incorrect (1/4 cup): No, your answer is incorrect.		

Audio	Screen	Props, etc.
Host VO: You will have to fill that cup many more times than you need.		
Which cup is most appropriate to use to measure two-thirds of a cup of brown sugar?	Blue dot question. Measuring cups laid out and dotted. Graphic of bag of brown sugar. (Clear bag, dark brown sugar with twistee on top?)	
Feedback: Yes, that's the correct answer. Congratulations! Incorrect (1 cup, 1/2 cup, 1/4 cup): No, you got it wrong. You want a cup that will give you exactly the measure you need.		
Host VO: For smaller amounts of both liquids and solids, we usually use teaspoons and tablespoons to measure. Frequently, these come in sets that include the teaspoon and tablespoon, and also 1/2 teaspoon and 1/4 teaspoon. The rule for choosing which to use is the same. Choose the	Graphic screen. Vanilla, canister of baking powder and spoons graphic.	

Audio	Screen	Props, etc.
Host VO: one that will need to be filled the fewest times but will come out evenly to the amount you need.		
Which spoon is most appropriate to use to measure 2 Tablespoons of baking powder?	Graphic screen. Blue dot question. Measuring spoons laid out and dotted. Graphic of jar of baking powder.	
Feedback: Yes, you got it right. Good job! Incorrect (any teaspoon measure): No, your answer is incorrect. You want the spoon you will have to fill the fewest times.		
Which spoon is most appropriate to use to measure 3/4 teaspoon of salt?	Graphic screen. Blue dot question. Measuring spoons laid out and dotted. Graphic of canister of salt, Morton's.	
Feedback: Yes, your answer is correct. Keep up the good job! Incorrect (1 tablespoon, 1 and 1/2 teaspoons): No, that's the wrong answer. You want a spoon that will give you exactly the measure you need.		

Audio	Screen	Props, etc.
Host VO: Which spoon is most appropriate to use to measure 2 teaspoons of vanilla? Feedback (teaspoon): Yes, you got it right. Good job! Incorrect (Tablespoon): No, that's incorrect. You want a spoon that will give you exactly the measure you need. Incorrect (1/2 and 1/4 teaspoon): No, that's incorrect. You want the spoon you will have to fill the fewest times.	Blue dot question. Measuring spoons laid out and dotted. Graphic of jar of vanilla.	
Host VO: Sometimes, it may happen that you don't have the cup you would normally choose to use. Say, you want the 1 cup measure and it isn't available. You will have to find a substitute.		
For instance, assume you need to measure 2 teaspoons of vanilla, but have no one-teaspoon measure. You could use the 1/2 teaspoon measure and fill it 4 times,	Graphic screen. Two 1/2 teaspoon graphics equal 1-teaspoon graphic. Below it, four 1/2 teaspoons graphics equal 2 1-teaspoon graphics.	

Audio	Screen	Props, etc.
Host VO: since two halves make a whole.		
Host VO: Suppose the 1-cup measure is missing. Which cup is most appropriate to use to measure 3 cups of flour?	Graphic screen. Touch the object once question. Graphic of cup sets has 1 cup measure with an x over it.	
Feedback (1/2 cup): Yes, that's the right answer. You're doing a good job. Incorrect (1/3, 1/4 cup): No, that's incorrect. You want the spoon you will have to fill the fewest times.		
Suppose the half cup measure is missing. Which cup is most appropriate to use to measure 1 and 1/2 cups of oats?	Graphic of cup set has 1/2 cup measure missing.	
Feedback (1/4 cup): Yes, that's the correct answer. Congratulations! Incorrect (1, 1/3 cup): No, you got it wrong. You want a spoon that will give you exactly the measure you need.		

Audio	Screen	Props, etc.
Host VO: Suppose the tablespoon measure is missing. Which spoon is most appropriate to use to measure 2 tablespoons of baking powder?	Graphic screen. Cup set has Tablespoon measure missing.	
Feedback (teaspoon): Yes, you got it right. Good job! Incorrect (1/2, 1/4 teaspoons): No, you got it wrong. You want the spoon you will have to fill the fewest times.		
Host VO: Once you have chosen a measuring instrument, you need to fill it the right number of times to get the quantity your recipe calls for.	Graphics: A bag on flour, opened. A single empty cup is at top with words. As narrator counts 1, 2, 3 cups appear, full, at bottom (middle) of screen.	
Host VO: What you do is count up by the amount of the measuring instrument until you get the quantity you want.		

Audio	Screen	Props, etc.
Host VO: For instance, this recipe calls for 3 cups of flour. We select from the set the 1 cup measure. Since we have whole cups to count, we count 1, 2, 3, up to 3 cups. When we get to 3, we're done.		
How many times should you fill this cup to measure 2 cups of flour?	Graphic screen. Multiple touch question. Graphics: Bag of flour remains. 1 cup measure.	
========================== **NARRATOR VO:** Touch the cup as many times as you need. When you're done, touch ENTER. ==========================		
Host VO: Feedback: Yes, your answer is correct. Keep up the good work. Incorrect (anticipated): No, that's the wrong answer. Remember, to count as you measure.		
Host VO: Suppose the only measure we had was the 1/4 cup, and we needed 1 and 1/4 cups of flour. We'd fill the one-fourth cup and count as we	Graphics are appearing as the fourth cups are voiced. When the fourth fourth appears, it is boxed and replaced by a one cup measure. Then	

Audio	Screen	Props, etc.
Host VO: measure, one fourth, 2 fourths, 3 fourths, 4 fourths. When we get to the fraction that has the same number on top as on the bottom, we have one whole. So four-fourths of a cup is one cup. Then we just add one more fourth to our one, and that's one and one fourth, the amount we wanted.	the fifth fourth appears.	
How many times should we fill this cup to measure two-thirds of a cup of brown sugar?	Graphic screen. Multiple touch question. Graphic of 1/3 cup.	
Feedback (2): Yes, you got it right. Good job! Incorrect (anticipated): No, that's the wrong answer. Remember to count by the measure of the cup you're using.		
Host VO: How many times should we fill this cup to measure 1 and 1/2 cups of oats?	Graphic of 1/2 cup. Multiple touch question.	

Audio	Screen	Props, etc.
Host VO: Feedback (3): Yes, your answer is correct. Keep up the good work. Incorrect (anticipated): No, that's the wrong answer. Remember to count by the measure of the cup you're using.		
How many times should we fill this cup to measure 1 and 1/2 cups oats?	Graphic screen. Multiple cup question. 1/4 cup measure plots.	
Feedback (6): Yes, you got it right. Good job! Incorrect (anticipated): No, you got it wrong. Remember to count by the measure of the cup you're using.		
We follow the same steps using measuring spoons. We select a spoon and count up by the measure of that spoon until we get the quantity we want.		

Audio	Screen	Props, etc.
Host VO: For instance, this recipe calls for 2 tablespoons of wheat germ. We select from the set the 1 tablespoon measure. Since we have 2 tablespoons to measure, we count 1, 2. When we get to 2, we're done.	Graphics: A single empty Tablespoon is at top with words. A jar of wheat germ. As narrator counts "1, 2" 2 Tablespoons, full, appear.	
How many times should we fill this spoon to measure 2 tablespoons of wheat germ?	Graphic of 1 teaspoon. Multiple touch question.	
Feedback: Yes, your answer is correct. Keep up the good work. Incorrect (anticipated): No, you got it wrong. Remember to count by the measure of the spoon you're using.		
How many times should we fill this spoon to measure 2 teaspoons of vanilla?	Graphic of 1/4 teaspoon. Multiple touch question.	
Feedback: Yes, that's the correct answer. Congratulations! Incorrect (anticipated):		

Audio	Screen	Props, etc.
Host VO: No, your answer is incorrect. Remember to count by the measure of the spoon you're using.		

cm3:Using Measuring Instruments

Audio	Screen	Props, etc.
Host: Earlier, when we were talking about ounces and cups, we introduced this measuring cup with marks on it. It's sometimes called a graduated measuring cup. Let's take some time to look at it more closely.	Motion Host choosing the glass measure from among the other measures and setting it on counter, then to CU of graduated glass measure	
Host VO: You'll notice it has ounces marked in the middle, and fractions of a cup marked on either side. This is because sometimes recipes call for 1/2 cup, and other times, for four ounces. As you can see, the 4 ounces and 1/2 cup are marked by the same line. That's because half of a cup is the same as 4 ounces.	Still of glass measure, showing both markings; arrows draw attention to 1/2 cup v. 4 ounces.	
And look at three-fourths of a cup and 6 ounces. Again, the same line. So three-fourths of a cup is the same as 6 ounces.	Same still. Another arrow drawing attention to single marking.	
How many ounces are there in one fourth of a cup?	Same still. Number bar question. Arrows removed.	

Audio	Screen	Props, etc.
Host VO: Feedback: Yes, your answer is correct. Keep up the good work. Incorrect (anticipated, other than 2): No, that's incorrect. Always look closely at the marks on the glass.		
Host VO: Although most of the lines are marked, some are not. That's because the numbers would be crowded and difficult to read, if all the measures were written. Here, the line between 4 and 6 ounces is not labelled. Because there is one line unlabelled, and one number missing, we know the line marks 5 ounces.	Same still.	
How many ounces are shown by this line?	Same still. Number bar question. Arrow points to 3-ounce line.	
Feedback (3): Yes, your answer is correct. Keep up the good work. Incorrect (anticipated, other than 3): No, that's incorrect. Always look closely at the marks on the cup .		

Audio	Screen	Props, etc.
Host VO: When you are using a measuring cup like this, you will try to get as close to the line for the amount in the recipe as you can. So, if the recipe says you need 4 ounces, you keep your eye on the ounce measurements as you pour into the cup.	Same still.	
[NO AUDIO, JUST DEMO]	Normal Host bends slightly over cookbook. He crouches to get his eye level with 1/2 cup mark on cup. As he pours juice from his crouch, slowly, carefully, camera moves in to CU. He pours right to the mark.	
Host VO: Are there 4 ounces of juice in this cup?	Still of CU. Blue dot (yes/no) question over still. Three ounces of grape juice in glass.	grape juice glass measuring cup
Feedback: Yes, that's the correct answer. Congratulations! Incorrect (anticipated): No, your answer is incorrect. The top of this juice does not make it to the 4 ounce mark.		

April 21, 1989 - kw

cm:30

Audio	Screen	Props, etc.
Host VO: Sometimes, you may just want to know how much of something you have. For instance, you might want to compare what you have with what you need for a recipe. In this case, you would pour the entire amount into the cup.	Motion Host pouring the whole of the cream into graduated glass measure to CU of poured cream with all of scale readable.	cream cup
It may come out right on a line of the measuring cup, but usually it will come close enough to a line to let you know if you have enough.	Same still of closeup of cup filled with a little over 2/3s of a cup.	
I need two-thirds of a cup. So I will look at the one-third and two-thirds cup scale. If my recipe had given a number of ounces, I'd look at the ounces scale.	Same still on left that shows all the scales on the glass.	
If the recipe had said a half-cup, I'd have looked at the 1/4, 1/2, 3/4 scale.	Same still.	
Host VO: I need 7 ounces of apple juice. Do I have enough?	New still. Blue dot question (yes/no). Graphic shows 6 and 1/4 ounces apple juice.	Apple juice. cup

Audio	Screen	Props, etc.
Feedback (no): Yes, you got it right. Good job! Incorrect (yes): No, that's the wrong answer. Always look at the line closest to the top of the thing you're measuring.		
Host VO: I need 1/4 cup of lemon juice. Do I have enough?	New still. Blue dot question (yes/no). Shows slightly more than 1/3 cup.	lemon juice cup
Feedback (yes): Yes, your answer is correct. Keep up the good work. Incorrect (no): No, that's incorrect. Always look at the line closest to the top of the thing you're measuring.		

Audio	Screen	Props, etc.
	cm4:Modifying Recipes	
Host VO: Cookbooks can give you ideas for things you can make for yourself and your friends. Let's take a look at a recipe, and get an idea of how capacity measurement is used in recipes.	Graphic screen. Shelf of cookbooks and a recipe other than spicy pork chops.	
Recipes are created with a number of people to serve, 4, 8, or 12. If you have more people, or fewer people to cook for, you can change the recipe to fit your needs.	Graphic of recipe, with highlight on number of servings.	
Here's one of my favorite recipes. How many people is it intended to serve?	Graphic screen. Touch the object once question. Graphic on left for Spicy Pork Chops:	
======================== **NARRATOR VO:** Touch the recipe in the correct place. ========================	Spicy Pork Chops (Serves 4) 4 pork chops 2 teaspoons vegetable oil 1 cup chopped onions 1/2 cup barbecue sauce 2/3 cup chopped green pepper 1/2 teaspoon salt 3/4 teaspoon paprika	

Audio	Screen	Props, etc.
	Brown pork chops in oil, in large frying pan. Add onions ... etc.	
	Graphic remains on left of screen for duration of this unit.	
Host VO: Feedback: Yes, you got it right. Good job! Incorrect (anticipated): No, that's incorrect. The number of servings is usually given at the beginning or end of a recipe.		
Host VO: Suppose you are having a dinner party and want to make this dish for 8 people, instead of 4. Since 8 is twice as much as 4, you would use twice as much of each ingredient to make 8 servings.	Graphic screen. Recipe for 4 moves to left of screen. Column for "8 people" appears on right with the measuring units and ingredients filled in but amounts left blank.	
How many pork chops would you need for 8 people?	Graphic screen. Number bar question. Line for pork chops is highlighted. As student fills spaces in, the correct amounts will appear in the blanks.	

Audio	Screen	Props, etc.
Host VO: Feedback: Yes, you got it right. Good job! Incorrect (for 32): No, that's eight times the recipe. You want to make 8 servings. unanticipated: No,...		
Host VO: How much barbecue sauce would you need for 8 people?	Graphic screen. Number bar question. Line for barbecue sauce is highlighted.	
Feedback: Yes, that's the correct answer. Congratulations! Incorrect (for 4): That's the wrong answer. That's eight times the recipe. You want to make 8 servings. unanticipated: No,...		
Suppose you were making the recipe for 12 people rather than 4 or 8. You would need 3 times as much of each ingredient in the recipe.	Graphic of recipe for 12 takes place of graphic of recipe for 8. Again, measuring units and ingredients are filled in, amounts left blank.	
How much barbecue sauce would you need for 12 people?	Graphic screen. Blue dot question. Recipe remains on the left, blue dot values on the right, stacked. Foils are 3 cups, 3-1/2 cups, 6 cups.	

Audio	Screen	Props, etc.
Host VO: Feedback (1-1/2 cups): Yes, your answer is correct. Keep up the good work. Incorrect (for rest): No, that's the wrong answer. You want 3 times the original recipe.		
How much green pepper would you need for 12 people?	Graphic screen. Blue dot question. Foils are 1 cup, 3 cups, 8 cups.	
Feedback (2) : Yes, that's the correct answer. Congratulations! Incorrect (for rest): No, you got it wrong. You want 3 times the original recipe.		
To make fewer servings than the recipe is for, we need to reduce the amount of each ingredient we use.	Graphic screen. Recipe for 4 reappears on left of screen. On right of screen is template of recipe and words "For 2".	

Audio	Screen	Props, etc.
Host VO: Let's say you want to make the pork chops for only 2 people, just you and a friend. Since 2 is half of 4, you need half as much of each ingredient.		
How many pork chops would you need for 2 people?	Graphic screen. Blue dot question. Pork chops highlighted. As student gives answers, they appear in spaces on right side of screen.	
Feedback (2): Yes, your answer is correct. Keep up the good work. Incorrect (for rest): No, your answer is incorrect. You want just half as much of each ingredient to make half the number of servings.		
Host VO: How much green pepper would you need for 2 people?	Graphic screen. Blue dot question. Screen changes like above. Foils are 1-1/3 cup, 2/3 cup, 1/2 cup.	
Feedback: Yes, you got it right. Good job! Incorrect (anticipated): No, that's incorrect.		

Audio	Screen	Props, etc.
Host VO: You want just half as much of each ingredient to make half the number of servings.		
Finally, suppose we wanted to make the recipe for one. Since 1 person is one-fourth as many as four, we would use only one-fourth as much of each ingredient.		
To find one fourth of a recipe, first figure out what half of it would be, and then figure out what half that amount would be. That's one-fourth.	Graphic of recipe remains on screen. On right, at top, is graphic of a circle. Then cut in half, then cut halves in quarters and color the quarter circle blue. Then have the rest of the circle appear around it to show it is one fourth the whole circle?	
Host VO: How much vegetable oil would you need for 1 person?	Graphic screen. Blue dot question. Foils are 1/2 Tablespoon, 1 Tablespoon, 1/4 teaspoon.	

Audio	Screen	Props, etc.
Host VO: Feedback: Yes, that's the correct answer. Congratulations! Incorrect (anticipated): No, that's the wrong answer. You want just one-fourth as much of each ingredient to make one-fourth the number of servings.		

Audio	Screen	Props, etc.
	cm5:Metric Capacity	
Host VO: In many countries people don't use all these different units to measure capacity. [About now, you probably wish you lived in one of those countries.] It's quite likely that we'll be using metric capacity measurement more in the future, so you should know a little bit about it. The most common unit in metric capacity is the liter. must be delivered with humor	Graphic screen. With units of traditional capacity system on left. Word liter plots on right as mentioned.	
You've probably seen the word "liter" before. Most of our soft drinks are now sold in liters. The larger bottles contain 2 or even three liters.	Graphics screen. Soda bottles with labels "1 liter" and "2 liters".	

Audio	Screen	Props, etc.
Host VO: You don't really need to be able to change from one system to another. But, there is one rough estimate that's handy to keep in mind. One liter is about the same as one quart.	Graphic screen. Milk carton graphic of appropriate size plots next to Soda bottle.	
About how many liters equal one quart?	Text screen. Blue dot question with distractors 2, 4, and 10.	
Host VO: Feedback (4): Yes, that's the right answer. You're doing a good job. Incorrect (for 10): No, that's the wrong answer. Try again. Incorrect (for 1 and 2): No, that's the wrong answer. A liter is about the same as a quart. Think of how many quarts there are in one gallon.		

Audio	Screen	Props, etc.
	cm6: QUIZ	
Host VO: How many teaspoons equal one Tablespoon?	Graphic, teaspoons times ? = 1 Tablespoon. Touch the object many times.	
How many quarts equal one gallon?	Graphic, quarts times ? = 1 gallon. Touch the object many times.	
How many cups equal one quart?	Graphic, cups times ? = 1 quart. Below, on screen, is 2 cups=1 pint and 2 pints=1 quart Touch the object many times.	
How many ounces equal one quart?	Graphic screen. Number bar question. Graphic, ounces times ? = 1 quart. Below, on screen, is 8 ounces=1 cup and 4 cups=1 quart	
Which cup is most appropriate to use to measure 1-1/2 cups of brown sugar?	Graphics: set of 4 non-graduated cup measures. Blue dot question.	

Audio	Screen	Props, etc.
Host VO: Which cup is most appropriate to use to measure three-fourths of a cup of oats?	Graphics: set of 4 non-graduated cup measures. Blue dot question.	
Which spoon is most appropriate to use to measure 1 and 1/2 teaspoons of orange juice?	Graphics: set of 4 spoon measures. Blue dot question.	
Suppose the one cup measure was missing. Which cup is most appropriate to measure 4 cups of sugar?	Graphics: set of 3 cup measures: 1/2, 1/3 and 1/4 cup. Blue dot question.	
Suppose your measuring tablespoon was missing. Which spoon is most appropriate to use to measure 2 Tablespoons of milk	Graphics: set of 3 spoon measures: 1 teaspoon, 1/2 teaspoon, 1/4 teaspoon. Blue dot question.	
How many times should you fill this cup to measure 1 and 1/2 cups of brown sugar?	Graphic screen. 1/2 cup measure. Touch object many times.	
How many times should you fill this cup to measure 3/4 cups of oats?	Graphic screen. 1/4 cup measure. Touch object many times.	

Audio	Screen	Props, etc.
Host VO: We need two-thirds of a cup of apple juice. Do we have enough?	Still of cup. Blue dot (yes/no). Exactly 1/3 cup.	
How many people is this recipe intended to serve?	Graphic: Chicken Rice Soup (Serves 6) 2 quarts chicken broth 2 cups cooked chicken 2/3 cup brown rice 1/2 teaspoon salt 3/4 teaspoon parsley Touch the place once.	
How many quarts of chicken broth are needed to serve 12 people?	Graphic screen. Number bar question.	
How many teaspoons of salt are needed to serve 12 people?	Graphic screen. Number bar question.	
How much chicken broth is needed to serve 3 people?	Graphic screen. Blue dot question. Foils are 1 cup, 2 cups, 1 pint.	
How much salt is needed to serve 3 people?	Graphic screen. Foils are 3/4 teaspoon, 1 teaspoon, 1 and 1/4 teaspoons.	

April 24, 1989 - kw cm:44

Audio	Screen	Props, etc.
Host VO: About how many quarts of milk would it take to fill a 1 liter soda bottle?	Text screen. Blue dot question. Foils are 2, 5, and 10.	

FINAL

April 20, 1989 - kw　　Weight Measurement　　wm:1

wm1:Weight Units

Audio	Screen	Props, etc.
Host: We use weight measurement all the time without really thinking a lot about it. When we need to move or carry something from one place to another, we unconsciously estimate how heavy it is.	Motion Host on screen, standing before kitchen counter. He has around him things that weigh about a pound: steak, small bag of gourmet coffee, serving of salad. Off to one side are loaf of bread, a turkey or large chicken, a slice of cheese.	steak 1lb. coffee 1lb. salad 1lb. loaf of bread 1lb. ~~turkey~~/large chicken 5½ lb. package of presliced, individually wrapped cheese
Host VO: The most common unit we use to measure weight is the pound. These things weigh about 1 pound.	CU to still of steak, coffee, serving of salad.	
change still Which of these things weighs about 1 pound?	CU to still of slice of cheese, loaf of bread, chicken turkey. Blue dot question.	
============================ **NARRATOR:** Touch the blue dot next to the correct answer. ============================		
Host VO: Feedback (bread): Yes, you got it right. Good job! Incorrect (for cheese): No, that's incorrect. The cheese is lighter than a pound.		

Audio	Screen	Props, etc.
changes Incorrect (for chicken turkey): No, that's incorrect. The turkey chicken is heavier than a pound.		
Host: This chicken turkey weighs about 5 15 pounds, many times the weight of the bread. The cheese weighs much less than the bread.	Motion Host on screen, gestures to chicken turkey, cheese, loaf of bread from above.	
For things that weigh less than a pound, the unit we use to measure their weight is the ounce.		
These things weigh about an ounce.	Motion Host picks up cheese, lays it next to other ounce things. CU to still of slice of cheese, snack bar, hard-boiled small egg, cookie.	[These are approximately the props, not final] granola snack bar, small hard-boiled egg, cookie
Host VO: Which of these things weighs about an ounce?	CU of bagel laden with cream cheese, a grape, block of baking chocolate Blue dot question.	[These are approximately the props, not final] bagel laden with cream cheese, one grape block of baking chocolate
Feedback (chocolate): Yes, you got it right. Good job! Incorrect (bagel): No, that's		

Audio	Screen	Props, etc.
[Host VO]: incorrect. The bagel is too heavy. Incorrect (grape): No, that's incorrect. The grape is too light.		
Most things won't weigh exactly one pound or one ounce, but somewhere in between an ounce and a pound.		
This weighs 3 pounds.	Still of objects for next three things. Weights are overlaid on them. First overlay: 3 pounds, appears on dishwasher detergent	Dishwasher detergent cdh
This weighs 4 ounces.	Overlay: 4 ounces	~~Pepper~~ cinnamon cdh
delete You probably know that people use abbreviations for words they spell often. The abbreviation for one pound is "L B period". For more than one pound, it's "L B S period".	Label "3 pounds" is replaced with 3 lbs.	
We have an abbreviation for ounce, too. It is "O Z".	Label "4 oz." replaces 4 ounces.	
delete When something is weighed in pounds and ounces, we say the number of pounds first, since	Overlay ~~4~~ 2 lb., ~~13~~ 10 oz. on third prop.	~~Fido detergent~~ cookie tin cdh prop needed

Audio	Screen	Props, etc.
[Host VO]: change pounds are the larger unit. Then we say the number of ounces. This weighs ~~4~~ 2 pounds, ~~13~~ 9 ounces.	(same STILL)	
Each of these slices of cheese weighs one ounce. When we put 16 slices of this cheese together, we have a pound of cheese. Sixteen ounces are in a pound.	Graphic of balance scale with block of cheese labelled "1 pound" on the left and slices of cheese standing up so there are 16 of them. Labelled "16 ounces" on the right.	
delete Sixteen slices, 16 ounces, 1 pound. All the same. There are 16 ounces in 1 pound. -08		
Do these things weigh the same?	Graphic of nuts marked 1 pound and nuts labelled 18 ounces on the other side with smaller balance scale in the back. Blue dot (yes/no) question.	
Feedback (no): Yes, your answer is correct. Keep up the good work. Incorrect (yes): No, that's incorrect. 1 pound is equal to 16 ounces.		
Finally, the unit we use in measuring the weight of very heavy things is a ton. You've heard the expression "This	Graphic of pyramid block, 3-dimensional, labelled 1 ton on the left and another labelled 2000 pounds on the right.	

Audio	Screen	Props, etc.
[Host VO]: weighs a ton," right? One ton is the same as 2000 pounds.		
Tons are used to weigh very heavy things, like cars and building materials.	Graphics of cars, trucks, at construction site	
Host: Most things we come across, though, we weigh in pounds, ounces, or a combination of pounds and ounces.	Motion Host on screen in front of tub of potato salad that's on a kitchen scale, with a stack of dinner plates and kitchen scale nearby.	tub of potato salad stack of plates 10-pound kitchen scale
Suppose we were given a weight in pounds and ounces and we needed to figure out how many ounces we had altogether.		
Like here. I know that we have 2 pounds, 3 ounces of potato salad. We need an ounce on each sandwich plate. So we need to know how many ounces we have altogether to know how many servings we have. MCU to potato salad. Picks up scoop and dips into potato salad.	MCU to potato salad. Picks up scoop and dips into salad.	
To do this, we need to find out how many ounces are in 2 pounds, and then add the remaining ounces to that	Host takes out a pad of paper to do calculations on.	note pad pen or pencil

Audio	Screen	Props, etc.
number.		
Host VO: The first thing we do is remember there are 16 ounces in 1 pound.	Graphics screen with little graphic of potato salad and 2 lbs., 3 oz. written next to it. 16 ounces = 1 pound plots as its voiced.	
Next, we write how many pounds we are changing to ounces, to get the measure of ounces in our pounds. We have 2 pounds, so we'll multiply 16 times 2.	x 2 plots below the 16	
delete So that's ... 32 ounces. [in 2 pounds.]	line, 32 ounces plots	
Finally, we add the original number of ounces to this number. We have 3 ounces to add in.	+3 plots below the 32	
That's 35 ounces altogether.	35 ounces plots	
delete [There are 35 ounces in 2 pounds, 3 ounces.]		
Now you try one. You have 4 pounds, 1 ounce of potato salad. How many ounces do you have altogether?	Text screen. Number bar question.	

Audio	Screen	Props, etc.
============================== **NARRATOR VO:** Touch the Numbers on the Bar to answer. When you're done, touch ENTER. ==============================		
Host VO: Feedback (65): Yes, you got it right! Good job! Incorrect (anticipated, for 49, 41, 33 ounces): No, that's incorrect. There are 16 ounces in a pound. Multiply the number of pounds by 16. Then add the original number of ounces. Incorrect (unanticipated): No, that's incorrect. Keep trying.		
Sometimes, you may know the number of ounces but need to change them to pounds and ounces.	Graphics screen, block of cheese on right labelled 43 ounces.	
When you are changing a measurement from smaller units -- like ounces -- to larger units -- like pounds, you will have fewer of the larger unit. It makes sense then that you should divide. We know that there are 16 ounces in a pound. So, here, we could divide 16 into 43 to find the	Smaller to larger -- Divide plots on right. 2 pounds 16) 43 32 ---- 11 ounces plots	

Audio	Screen	Props, etc.
number of pounds and ounces. Of course, a lot of people have trouble with division.	division screen erases	
So, for a small number, like this, you can always use my repeated subtraction substitute for division. [It works like this.] Touch HELP change If you want to see how it works.	Graphic screen: Block of cheese remains. "Repeated subtraction works, too" plots	
Again, the first thing we need to do is remember there are 16 ounces in 1 pound. Then to change from ounces to pounds and ounces; we subtract 16 ounces (or 1 pound) at a time, until we have no more whole pounds. When we have less than 16 ounces, the number remaining is the number of ounces left over. If we get a zero, that means we have no extra ounces. We only have full pounds. Delete	need visual here	
Here we are starting with 43 ounces. We ask, Do we have 16 ounces or more? We do, so we subtract 16 ounces.	43 ounces plots - 16 plots ---- 27 plots	
We ask again, Do we have 16 ounces or more? Yes, so we subtract 16 again.	- 16 plots ---- 11	

Audio	Screen	Props, etc.
Do we have 16 ounces or more? No, we don't. So this number is our remaining number of ounces.		
delete Host VO: Now we count the number of times we subtracted 16 ounces. One, two. That's 2 pounds. And we have 11 ounces remaining. 43 ounces is the same as 2 pounds, 11 ounces. 1:10	Arrows flash to right of lines with -16 on them. 43 ounces = 2 lb., 11 oz. plots	
Now You try one. This weighs 29 ounces. How much is that in pounds and ounces?	Graphic screen. Two-part number bar question. Small graphic labelled 29 ounces.	
============================== **NARRATOR VO:** Touch the numbers on the bar to answer. The cursor will move automatically from pounds to ounces. When you're done, touch ENTER. ==============================		
Host VO: Feedback (1 lb., 13 oz.): Yes, you got it right. Good job! Incorrect (anticipateds: 2 lb., 9 oz.; 2 lb., 5 oz.; 3 lb., 5 oz.): No, that's incorrect. Remember, there are 16 ounces in a pound.		

Audio	Screen	Props, etc.
[Host VO]: Incorrect (anticipated: 1 lb., 11 oz. 3 lb., 11 oz.): No, that's the wrong answer. Count how many times you subtracted 16.		
Incorrect (unanticipated): No, your answer is incorrect. Keep trying.		

delete

STET

Audio	Screen	Props, etc.
Host VO: Do one more. This weighs 38 ounces. How much is that in pounds and ounces? Feedback: Yes, your answer is correct. Keep up the good work. Incorrect (anticipated: 3 lb., 2 oz.; 3 lb., 8 oz.; 4 lb., 6 oz.: No, that's incorrect. Remember, there are 16 ounces in a pound. delete Incorrect (anticipated: 1 lb., 6 oz., 3 lb., 6 oz.): No, that's the wrong answer. Count how many times you subtracted 16? STET Incorrect (unanticipated:) No, that's incorrect. Keep trying.	Graphics screen, object labelled 38 ounces. Two-part number bar.	

418

417

wm2:Choosing scales

Audio	Screen	Props, etc.
Host: An understanding of pounds and ounces and the relationship between them is very important for working with weight measurement. Now, let's look at the tools we use to measure weight -- scales.	Motion Host on screen, beside a counter-top that has 4 scales, 10-ounce, 10-pound and 20-pound scales.	10-ounce scale (VSA), 10-pound scale (Elaine's), ~~and 20-pound scale~~
There are different kinds of scales that are used for weighing different things. Digital scales tell you the measurement, so they're pretty easy to use.		
Host VO: Other scales have a pointer which points to numbers or markings representing weights. You read this kind of scale by looking at where the pointer points.	Closeup still of 10-ounce scale pointing to 3 ounces.	10-oz. scale
Every scale has a "capacity", that is, a maximum weight that it can measure accurately without breaking. See	Same STILL Overlay arrow flashes at capacity statement on closeup.	

Audio	Screen	Props, etc.
delete the capacity statement on this scale? It says: Host VO: "Capacity: 10 ounces". That means This scale can weigh 10 ounces and less. Things that might be weighed on this scale are fruit, candies or individual servings of any food.	Still of things that might be weighed on that scale on counter top.	things that might be weighed on that scale, fruit, candy, small steak or pork chop, broccoli, potato
Host VO: Your turn! What is the capacity of this scale?	Closeup, STILL face of ~~20~~ 10-pound scale on left of screen. Foils are ~~20~~ 18 ounces, 1 pound, 0 pounds. Blue dot question.	20-lb. scale
Feedback (~~20~~ 10 lbs.): Yes, that's the correct answer. Congratulations! Incorrect (~~20~~ 18 ounces foil): No, that's the wrong answer. This scale measures in pounds. delete Always look *carefully* at the capacity on the face of the scale. Incorrect (1 pound and 0 pounds): No, that's the wrong answer. Always look carefully at the capacity on the face of		

Audio	Screen	Props, etc.
the scale.		

Audio	Screen	Props, etc.
Host VO: Things we might weigh on this scale are things that weigh ~~20~~ 10 pounds or less, like an eggplant, a head of cauliflower or this chicken. ~~turkey.~~	Still of things that weigh less than ~~20~~ 10 pounds on counter top	~~turkey~~ chicken eggplant cauliflower 20-lb. scale
Host: Let's try this cauliflower on the ~~20~~ 10 pound scale.... Yep, this is the right scale to weigh this on.	Motion Host puts it on the 20-pound scale.	
See? The pointer is in between the lowest and highest numbers on the scale.	CU of scale weighing cauliflower (doesn't necessarily have to show numbers, just where the needle is).	
Let's see what happens if we weigh something heavy on a scale meant for things that are lighter.	Motion Host takes cauliflower off scale and puts it on 10-ounce scale.	
That's what I thought would happen. The cauliflower is too heavy for this 10-ounce scale.	Cauliflower maxxes out 10-ounce scale.	
You need to keep a few things in mind when you pick a scale. Let's say we wanted to weigh this	MOTION full screen host ~~folding~~ standing ... (see same as [illegible] last entry) CU of eggplant and scales toward left 2/3s of screen.	

change

Audio	Screen	Props, etc.
Delete [Host:] eggplant. There are steps you can take to help you choose the right scale.		
Delete Host VO: First: Estimate how much it weighs, generally speaking; Two: Check the capacities of the scales you have; Three: Compare them to the weight you've estimated and reject those with capacities less than the weight you've estimated; Four: Ask if, practically speaking, you can weigh that item on that scale; Five: Choose the best scale by choosing the one that exceeds the weight of the object by the smallest amount.	Graphics, plots with host voice on right 2/3s: 1) Estimate the weight 2) Check capacities of scales 3) Compare estimate to capacities and rule out those too small 4) Ask, Is it practical? 5) Choose scale that exceeds your estimate by the smallest amount.	
Host: First, you need to estimate, that is, make your best guess about how much it weighs. Estimating gets easier the more you do it. If you have a job where you're weighing things	Motion [full screen] Host standing behind counter with scales and eggplant in front. Tone of voice more confidential, less matter-of-fact as host gives second sentence.	

Audio	Screen	Props, etc.
[Host:] all day, it will become second nature to you to estimate weights, believe me.		
I estimate that this eggplant weighs ... uh ... 2 pounds.	Motion Host bouncing eggplant up and down gently in hand, puts on counter next to scales. When s/he says 2 pounds, go to Closeup and still on left 2/3s of screen. Text overlay on right 1/3 plots "Estimate".	
Host VO: The next step is to check the capacities of the scales we have. I have these 3 scales. This one has a capacity of 10 ounces; this one, 10 pounds, and this one, 20 pounds. change	Same still on left side. "Check capacity" plots. Arrows flash as capacities of scales are mentioned.	
Now, we need to compare our estimated weight to those capacities. The capacity of the scale should be larger than our estimate. So here that means we have to rule out	"Compare estimate to capacities" plots. An "X" overlays the 10-ounce scale.	

Audio	Screen	Props, etc.
using the 10-ounce scale. But the capacity of these two scales is each larger than 2 pounds, so they are left.		
delete Next, we look at the [Host VO:] practicality of using the scales to weigh the item. Could we weigh this eggplant on each of these scales? Sure, that looks possible.	"Practical?" plots.	
Host: Finally, we choose the best scale for the job by choosing the scale with the capacity closest to the weight we've estimated. Here, ~~t~~The 10-~~ounce~~ long pound scale is closest to our estimate, so we choose it, and ~~Are~~ we're ready to weigh this. finally? Yes! Here goes. change delete	Motion Host putting eggplant on 10-lb. scale. A successful weigh, showing the needle about in the middle of the scale. Then camera pulls back to include the host in the shot.	
I think you're ready to try choosing a scale. Let's see, just to get you started, I'll estimate this tomato weighs ... mmm ... 7 ounces.	Motion Host to camera. Picks up largish ripe tomato.	Tomato, good size, about 6 or 7 ounces.

Audio	Screen	Props, etc.
change Host VO: Which scale is better the best for weighing this tomato?	Still Tomato and two three scales, blue-dotted, on left two-thirds of screen, hopefully with their capacities showing (else they'll be overlaid). Tomato has overlay label estimating it weighs 7 ounces. Rules remain on the screen on the right one-third of screen.	
[Host VO:] Feedback (10-ounce): Yes, that's the correct answer. Congratulations! Incorrect (unanticipated): No, you got it wrong. Good luck next time.		
Try another one. Let's estimate this squash weighs 4 pounds.	Still on left 2/3s with squash replacing tomato, again overlaid with estimated weight. Which of these scales should we rule out using to weigh this squash?	Same still on left. Blue dot question.
Feedback (10-ounce): Yes, your answer is correct. Keep up the		

Audio	Screen	Props, etc.
good work. Incorrect (10-lb., 20-lb.): No, that's the wrong answer. That scale could weigh a 4-pound squash.		
delete Which of these scale~~s~~ is better for weighing this squash? Feedback (10-lb. scale): Yes, that's the right answer. You're doing a good job! Incorrect (20-lb.): No, that's incorrect. You want to use choose the scale with the capacity closest to the weight you've estimated.	Same still Graphics Blue dot question. Blue dot for 10-ounce scale has been removed and an X is overlaid on it.	
Host: Another situation we often run across when we're preparing party platters for our customers is weighing out some amount of something -- say, 2 pounds of pasta salad. In this case, all delete we have to do to choose the right scale is the	Motion Host on screen in left 2/3s, doing something with party platter. Steps that plotted on the screen before plot again on the right 1/3 again. Beginnings of party platter on the counter.	party platter lettuce few pieces of cheese few pieces of meat pasta salad container (large)

Audio	Screen	Props, etc.
delete last four steps. We don't bother estimating the weight of the salad, because We already know how much we want to measure out. So we choose the scale that is better best for the weight we want to measure. This one— for 2 pounds.	At "don't bother estimating," X plots over the first step, estimating. gestures to 10-lb scale.	
delete Host VO: Let's say we have two scales available, our 10-pound scale and our 20-pound scale. We want 11 pounds of cheese for a party platter we're putting together. Which of the scales is better to use? Feedback (20-lb.): Yes, your answer is correct. Keep up the good work. Incorrect (10-lb.): No, that's incorrect. Remember the weight of the cheese has to be less than the capacity of the scale.	Still of 2 scales and cheese. Blue dot question.	

add props

Audio	Screen	Props, etc.
	wm3:Reading scales	
Host: So, now all we have left to learn about in weight measurement is reading scales and measuring out given amounts. Let's look at reading scales first.	Motion Host on screen, standing by counter with 10 oz. scale and pasta salad container and scoop. Host puts a scoop of salad on wax paper on scale.	pasta salad container scoop wax paper and little tub to put salad in 10-oz. scale 10-lb. scale chicken
As I said before, to read most scales you just look at the number the pointer points to.		
This weighs 2 ounces.	CU of face of scale which indicates 2 ounces exactly.	
Host VO: How many ounces does this weigh?	Still Number bar question. Serving of pasta salad, weighing 9 ounces exactly.	Salad weighing 9 ounces.
Feedback (9): Yes, you got it right. Good job! Incorrect (unanticipated): No, that's incorrect. Always look carefully at the pointer and the number it's pointing to. Incorrect		

Audio	Screen	Props, etc.
(unanticipated): No, that's incorrect. Keep trying.		
Host: On this scale, each whole number up to the scale's capacity is written on the face, so we just figure out what parts of the ounces are indicated by the small lines between the numbers.	Motion Host on screen, closeup of face of 10-ounce scale. Host indicates with his finger the lines. Moves finger out of shot. To still.	
Host VO: Here the scale is marked 0, 1, 2, 3, all the way up to 10. That means that each of the little lines here stands for a part of an ounce -- that is, a fraction of an ounce. To read a scale like this when the pointer is between 2 numbers is easy once you know the trick.	Still on left half of screen of 10-ounce scale with weight of 5 and 3/4 ounces. Arrows flash at marked ounce measures. As narrator says "write down the smaller number," whole number part plots on right of screen, below still. Then, at appropriate times, the denominator and fraction bar, and numerator plot.	
First, you need to find the end of the pointer. Here, it's between 5 and 6 ounces. Write down the smaller number as your	(same STILL) Graphics Rules are plotting on right half of screen (abbreviated), as narrator speaks: Whole number: Of two Graphics	

Audio

[Host VO:]
whole number. Then count the number of spaces between the two numbers. This is the number of parts -- the bottom part of your fraction. Write that down too, with a fraction bar above it. Next, count the lines between the smaller number that you've written down and the end of the pointer. That's the top of your fraction. Write that down too. This number is the weight. So the weight shown here is 5 and three-fourths ounces.

Your turn now! What is the weight shown by this scale?

Feedback (14-3/4): Yes, your answer is correct. Keep up the good work! Incorrect (for 15-3/4): No, that's the wrong answer. The smaller of

Screen

whole numbers around the pointer, write down the smaller of the two. Bottom of fraction: The number of spaces between those two whole numbers. Top of fraction: The number of lines between the whole number and the pointer.

replace with next screen

Still on left half of screen of 18 20-lb. scale. CU on weight at 14-3/4 pounds. Blue dot question. Foils are 15-3/4, 14-~~3/4~~ 1/2, 14-2/4.

Props, etc.

1-4
chicken ? lbs 8 oz
what?
[illegible] scale.

Audio	Screen	Props, etc.
[Host VO:] the two numbers on each side of the pointer is the correct whole number for this measure. Incorrect (for 14-2/4 or 14-1/2): No, that's the wrong answer. Always count the lines between the whole number measure and the pointer for the top of your fraction.		
Host VO: Do one more. What is the weight on this scale?	move to previous page Still on left 1/2 of screen of 10-pound scale on left indicates weight of 3-1/2 pounds (or 3-2/4 pounds). Rules from before remain on the right half of screen. Foils are 4-2/4, 3-3/4. Right answers will be 3-1/2 and 3-2/4. Blue dot question.	
Feedback (3-2/4 and 3-1/2): Yes, you got it right. Good job! Incorrect (for 4-2/4 pounds): No, that's		

Audio	Screen	Props, etc.
[Host VO:] delete incorrect. The smaller of the two numbers on each side of the pointer is the correct whole number for your measure. Incorrect (3-3/4 pounds): No, that's incorrect. Always count the lines between the whole number measure and the pointer for the top of your fraction.		
Host VO: Sometimes the fraction part of a number can be written in a more familiar way. For instance, 2/4 would probably look more familiar to you if we wrote it 1/2. These two fractions mean the same thing. but people are likely to understand you more quickly if you say 1/2. delete	Still on left half of screen of 10-pound scale showing weight of 3-1/2 lbs. Right side of screen is overlay. 3-2/4 pounds plots at appropriate time. Then 2/4 = 1/2. Then 3-2/4 = 3-1/2	
Host VO: There is one last relationship you should know between pounds and ounces, and this refers to parts of pounds. Sometimes, as we delete	Graphics on left side of screen of block of cheese and scale's face with ounces and parts of pounds.	

Audio	Screen	Props, etc.
[Host VO:] just did, we weigh food in pounds and parts of pounds, instead of pounds and ounces. delete At the deli, people don't order 8 ounces of cheese, but a half pound of cheese. There are three fractions of pounds that are used often. They all come from the basic rule, 1 pound equals 16 ounces, but they are used so often it makes sense to memorize them.		
A half-pound is the same as 8 ounces.	Graphics/text screen on right: 1/2 pound = 8 ounces	
One-fourth of a pound is 4 ounces.	1/4 pound = 4 ounces	
Three-fourths of a pound is 12 ounces.	3/4 pound = 12 ounces	
Since these are important to remember it's worth practicing a bit. How many ounces equals one-half pound?	Graphics/text screen. Scale erases, cheese remains. Number bar question. 1/2 pound = ____ ounces	
Feedback: Yes, that's		

Audio	Screen	Props, etc.
[Host VO:] the right answer. You're doing a good job. Incorrect: No, that's the wrong answer. Remember, 1 pound equals 16 ounces, so one-half pound will be one-half of 16 ounces.		
How many ounces equals 1/4 pound?	Text screen. Number bar question. 1/4 pound = ____ ounces.	
Feedback: Yes, you got it right. Good job! Incorrect: No, that's incorrect. Remember, 1 pound equals 16 ounces, so one-fourth a pound will be one-fourth of 16 ounces.		
How many ounces equals 3/4 pound?	Text screen. Number bar question. 3/4 pound = ____ ounces.	
Feedback: Yes, you got it right. Good job! Incorrect (anticipated): No, you got it wrong. Remember, 1 pound equals 16 ounces, so three-fourths pound will be three-fourths of 16		

	Audio	Screen	Props, etc.
	ounces.		
Delete Delete	Host VO: But, you know not all countries measure the weight of things in ounces, pounds and tons. In fact, in most places weight is measured in units of another system -- the metric system. Its most common weight units are grams and kilograms. If you need to weigh something in grams or kilograms, you will use a scale which uses these units, so don't worry about changing between metric and our traditional system of weight measurement.	wm4:Metric Weight Text and graphics screen: With units of the Traditional weight system on left. Metric system and its units plot on right as mentioned.	
lete mparison are lete	There are a couple of comparisons that are good to know, though, between our system and the metric system.		
	First, a gram is a very light unit -- much lighter than even our ounce. In fact, it takes almost 500 grams to equal	Graphic screen: Balance scale with "About 500" grams on one side and 1 pound on the other.	

Audio	Screen	Props, etc.
one pound.		
[Host VO:] Kilograms -- on the other hand -- are heavier than one pound. It takes one thousand grams to equal one kilogram.	Graphics: Balance scale with 1000 grams on one side and 1 kilogram on the other.	
What you want to remember is that one kilogram weighs about two pounds.	Graphics: Balance scale with 2 pounds on one side and 1 kilogram on the other.	
About how many pounds equal 1 kilogram?	Text screen. Blue dot question. Foils are 1, 5, and 10.	
Feedback (2): Yes, that's the right answer. You're doing a good job. Incorrect (for 5, 10): No, that's the wrong answer. Try again. Incorrect (for 1): No, that's the wrong answer. A pound and a kilogram are not the same weight.		

Audio	Screen	Props, etc.
	Wm5:Student Test	
Host VO: How many ounces are in a pound?	Text screen. Number bar question.	
How many ounces are in 2 pounds, 14 ounces?	Text screen. Number bar question.	
How many pounds and ounces are in 37 ounces?	Text screen. Number bar, auto-moving cursor.	
How many pounds and ounces are in 32 ounces?	Text screen. Number bar, auto-moving cursor.	
Host VO: What is the capacity of this scale?	Still of scale with capacity of 10 pounds. Blue dot question. Foils are 10 pounds, 10 ounces, 10 tons.	10-lb scale
Host VO: It is estimated this melon weighs about 3 pounds. Which of these scale~~s~~ would be best for weighing this melon? is better change	Still of ~~3~~ 2 scales from before (10 oz., 10 lb., 20 lb.). Blue dot question.	10-oz scale 10-lb scale

Audio	Screen	Props, etc.
Host VO: It is estimated that this cheese weighs 5 ounces. Which of these scale~~s~~ would be best is better to weigh it on? change	Still of ~~3~~ 2 scales. Blue dot question.	10-oz scale 10-lb scale c.5-oz block of cheese
Host VO: How much does this pineapple weigh?	Graphic screen. Blue dot question. Graphic, 5 pounds.	
How much does this pineapple weigh?	Graphic screen. Scale shows weight of 5 pounds, 4 ounces. Number bar question (auto-moving cursor). Scale is marked in whole numbers only.	
Host VO: How much does this head of lettuce weigh in pounds and parts of pounds?	Still shows weight of 1-1/4 pounds. Foils are 1-1/2 pounds, 1/4 pounds. Blue dot question. Scale has every pound marked.	10 lb. scale 1 1/4 lb. head of lettuce
Host VO: How much does this head of lettuce weigh in pounds and ounces?	Same still as above. Number bar question.	
About how many pounds is equal to one kilogram?	Graphics/text screen. Blue dot question.	

TEMPERATURE SCRIPT

AUDIO	SCREEN	PROPS, ETC.
HOST: Around the restaurant we use a lot of thermometers. There are thermometers for cooking meat that tell us how hot the meat is in the center. And, there are special ones we use when we deep fat fry so we can make sure the oil doesn't get too hot. Then there are the ones we use just to tell how warm it is inside and outside the restaurant -- like this one on the thermostat here and the one right outside the window (door). All of **these** -- just like the thermometer you use when you're sick -- measure temperature in degrees Fahrenheit. That's the scale that we still use most of the time in the United States.	MOTION HOST ON SCREEN: He is standing by the counter next to a kitchen carousel, which holds kitchen tools, including a deep fry thermometer. A small roast is sitting on the counter with a meat thermometer stuck in it. He pulls the deep fry thermometer out and clips it on the edge of a large pot containing hot oil (Note: This can actually be hot water with a little yellow food coloring). Then walks over to thermostat and points toward the thermometer outside the window as he mentions the outdoor thermometer.	PROPS: Meat thermometer (mercury), Deep fry thermometer (pointer type), Thermostat (pointer type), Outdoor thermometer (mercury).

AUDIO	SCREEN	PROPS, ETC.
VO: There are several different **types** of thermometers. These two are pointer type thermometers. To read one of these, you just look at the end of the pointer - to the number it's aiming at. So, the thermometer on the thermostat is registering 68 degrees. (**Note: This has to be a marked number. May change depending on available real thermostat on which graphic is modelled.**) What temperature is the deep fry thermometer registering now?	STILL WITH THERMOSTAT THERMOMETER ON RIGHT SIDE registering 68 (?) degrees AND DEEP FRY THERMOMETER ON THE LEFT registering 350 degrees. Red arrow points to 68 degrees on thermostat as he says the temperature. Then window covers thermostat thermometer on right and question plots as the narrator says it. NUMBER BAR INPUT.	PROPS: Deep fry and pointer type thermostat above.
NARRATOR: Touch the numbers on the bar to answer. When you're done, touch enter.	STILL - Same as above	
FEEDBACK: FOR CORRECT RESPONSE: Yes, that's the correct answer. Congratulations! FOR INCORRECT UNPREDICTED RESPONSE: No, you got it wrong. Good luck next time. FOR INCORRECT PREDICTED RESPONSE: If + OR - 10 Degrees, No, that's incorrect. You're close, but the pointer is pointing directly toward a number marked on the thermometer.		

AUDIO	SCREEN	PROPS, ETC.
VO: Reading mercury thermometers isn't very much different. On these, you pay attention to the top of the mercury in the little glass tube. Usually it has some color in it to make it easier to see. So, the temperature on this meat thermometer is 160 degrees (**Note: This may change depending on numbers marked** on **actual meat thermometer. Has to be a marked number**) What is the temperature outside? FEEDBACK: FOR CORRECT RESPONSE: Yes, that's the right answer. You're doing a good job. FOR INCORRECT UNPREDICTED RESPONSE: No, that's incorrect. Keep trying. FOR INCORRECT PREDICTED RESPONSE: If + OR - 5 Degrees and not pointing at a marked number, No, that's incorrect. You're close, but the top of the mercury is located at a number marked on the thermometer.	GRAPHIC ~~STILL~~ WITH MEAT THERMOMETER ON RIGHT registering 160 degrees AND OUTDOOR THERMOMETER ON LEFT registering 80 degrees. Red arrow points at 160 degrees as he says it. Then window covers meat thermometer and question plots as question is posed. NUMBER BAR INPUT.	PROPS: Meat and outdoor thermometer from temperature opening

AUDIO	SCREEN	PROPS, ETC.
VO: You probably noticed on these thermometers, a small circle, that looks like a small letter "O" -- with a capital "F" period after it. This is the abbreviation for degrees fahrenheit. When you write an actual temperature you put this after the number -- like this. Notice that the degree sign isn't right on the line.	Graphics and Text: Graphic of part of the pointer outdoor thermometer on left. Degree symbol F highlighted as mentioned. 90*F. plots as that's mentioned.	Props: None
Which of these is the correct abbreviation for 75 degrees Fahrenheit?	Text Screen: Blue Dot multiple choice. Choices are: 75 * Fahrenheit; 75*F.; *75F.; 75 degrees F.	Props: None
NARRATOR: Touch the blue dot next to the correct answer.		
FEEDBACK: FOR CORRECT RESPONSE: Yes, that's the right answer. You're doing a good job. FOR INCORRECT ANTICIPATED RESPONSE: The number goes first. Then the small circle. Finally, the capital F., period.		

AUDIO	SCREEN	PROPS, ETC.
HOST: I really like these new digital thermometers. On this fever thermometer, the number on the display tells you exactly what the temperature is. I just bought this one to replace the old mercury one.	MOTION HOST ON SCREEN: Walks over to put his new digital fever thermometer into the first aid cabinet. He holds the new one up as he mentions it. End with closeup of the digital thermometer showing the temperature clearly.	PROPS: Digital fever thermometer, First aid cabinet or box filled with miscellaneous first aid supplies.
VO: One reason digital thermometers are becoming so popular is that it's not always that easy to tell what the temperature is when the pointer or the mercury isn't next to a marked number. Since thermometers are designed for all kinds of different purposes, some -- like this indoor thermometer--only need to measure a fairly narrow temperature range -- from 50(?) degrees to 100(?) degrees. But this outdoor thermometer has to be able to measure temperatures all the way from 60 degrees below zero up to 120 degrees above zero.	GRAPHIC ~~STILL~~ WITH MERCURY INDOOR THERMOMETER OR THERMOSTAT THERMOMETER ON RIGHT SIDE registering 74 AND OUTDOOR THERMOMETER ON LEFT SIDE registering 74 degrees. Red arrows point at top and bottom numbers on both thermometers as they are mentioned and remain on the screen.	PROPS: Outdoor thermometer and mercury indoor or thermostat thermometer

AUDIO	SCREEN	PROPS, ETC.
VO: Whenever there's a pretty wide range, there just isn't room to write all of the whole temperature numbers on the thermometer. Instead, there are usually little lines that stand for other temperatures. The problem most people have is figuring out exactly what each of these little marks stands for. On this outdoor thermometer, the numbers that are marked are more than one degree apart. That **usually** means that each of these little marks stands for a temperature that is at least one degree more than the one below. Usually the marks stand for 1, 2, or 5 degrees. To read a temperature that's not marked, you start by looking at the marked temperatures on either side of the mercury or pointer and make a good estimate of what each little mark stands for. Let's say you chose 5 here. Then, to check to see if your estimate was right, you can count by 5's from the smaller number to the larger number. If your counting matches the higher number when you come to it, you know that your estimate was correct. Let's try counting by 5's here. Starting at 60 -- since that's the nearest marked number below the top of the mercury.	STILL OF THE OUTDOOR MERCURY THERMOMETER ON LEFT HAND SIDE OF SCREEN FROM BEFORE REGISTERING 74 DEGREES. As the narrator speaks 1/2 screen window opens to cover other thermometer and the following plots on right hand side of screen. If the marked numbers are more than one apart, each little line probably stands for 1, 2, or 5 degrees. Count by 1, 2, or 5 from the marked number below the actual temperature to the marked number above the temperature. If your counting matches the top number, you chose correctly. If your counting does not match the top number, choose again. When you have a match, count from the lower number to the top of the mercury or pointer -- THAT'S THE TEMPERATURE. Arrows point to numbers on thermometer as mentioned.	PROPS: Outdoor mercury thermometer from above

AUDIO	SCREEN	PROPS, ETC.
60, 65, 70, 75, 80, 85, 90, 95, 100, 105, 110. Our counting and the higher number don't match. That means we need to choose another one of the common numbers - 1, 2, or 5. This time I'll choose 2. 60, 62, 64, 66, 68, 70, 72, 74, 76, 78, 80. It came out right this time. That means each mark stands for 2 degrees. Now all I have to do is count by 2 from the lower number to the top of the mercury. 60, 62, 64, 66, 68, 70, 72, 74. 74 -- This is the temperature.		
VO: What is the temperature shown by this thermometer?	GRAPHIC ~~STILL~~ OF POINTER OUTDOOR THERMOMETER ON LEFT HAND SIDE OF SCREEN REGISTERING 88 DEGREES. Information plot from before remains on right. Question plots below information on right hand side. NUMBER BAR INPUT.	PROPS: Pointer type outdoor thermometer with Celsius scale covered up.
FEEDBACK: FOR CORRECT RESPONSE: Yes, your answer is correct. Keep up the good work. FOR INCORRECT UNPREDICTED RESPONSE: No, that's the wrong answer. Try again. FOR INCORRECT PREDICTED RESPONSE: If 84 degrees, No, you got it wrong. You're counting by ones. If 100 degrees, No, you got it wrong. You're counting by fives.		

AUDIO	SCREEN	PROPS, ETC.
HOST: Try another one, this time with the deep fry thermometer. What is the temperature shown on the deep fry thermometer?	GRAPHIC ~~STILL~~ OF THE DEEP FRY THERMOMETER REGISTERING 290 DEGREES ON LEFT HAND SIDE OF SCREEN. Information plot from before remains on right. Question plots below information on right hand side. NUMBER BAR INPUT.	PROPS: Deep fry thermometer
~~NARRATOR~~ FEEDBACK: FOR CORRECT RESPONSE: Yes, that's the correct answer. Congratulations! FOR INCORRECT UNPREDICTED RESPONSE: No, that's incorrect. Keep trying. FOR INCORRECT PREDICTED RESPONSE: If 278 degrees, No, that's wrong. You're counting by ones. If 281 degrees, No, that's wrong. You're counting by twos.		

NOTE: ALL THERMOMETERS UP TO THIS POINT HAVE THEIR CELSIUS SCALES COVERED UP.

AUDIO	SCREEN	PROPS, ETC.
VO: But you know, not all countries use the Fahrenheit temperature scale. Most of them measure temperature in degrees Celsius. We use it in the U.S. sometimes too, and in the future we may be using it more. So, a lot of the thermometers have both temperature scales on them, like this one. The inside is marked for Celsius. Notice the capital C after the degree sign. The outside is marked for Fahrenheit. With thermometers like this, you can read off the temperature in either Fahrenheit or Celsius degrees. As you can see, 50 degrees Fahrenheit is about the same as 10 degrees Celsius.	GRAPHIC ~~STILL~~ of pointer outdoor thermometer - full screen. Arrows point to the appropriate places of the thermometer as mentioned.	PROPS: Pointer outdoor thermometer with both scales showing.
delete VO: Of course the way that you find out what the degrees Celsius are when they aren't marked is just the same as it is for Fahrenheit. The trick is that even on the same thermometer, the little lines may stand for a different number of degrees on the two scales. So, you need to be careful, and use the same procedure to find degrees Celsius when the number isn't marked that you use to find degrees Fahrenheit.	~~STILL~~ OF YELLOW OUTDOOR THERMOMETER ON LEFT SIDE registering 80(?) degrees Fahrenheit. Procedure from before about how to proceed when numbers are more than one apart appears in window on right side.	PROPS: Same as immediately above.

AUDIO	SCREEN	PROPS, ETC.
VO: What Celsius temperature is the same as 80 degrees Fahrenheit? (Note: This number may have to change. It should be an unmarked Celsius temperature which lines up with a marked Fahrenheit temperature.) FEEDBACK: FOR CORRECT RESPONSE: Yes, that's the correct answer. Congratulations! FOR INCORRECT UNPREDICTED RESPONSE: No, you got it wrong. Good luck next time. FOR INCORRECT PREDICTED RESPONSE: If 34 Degrees, No, that's incorrect. You're close, but it seems you are counting each little mark as 2 degrees. If 80(?) degrees, No, the Celsius temperature won't be the same as the Fahrenheit temperature.	GRAPHIC ~~STILL~~ OF YELLOW OUTDOOR THERMOMETER - same as immediately above. Question plots below rule as question is posed. NUMBER BAR INPUT.	PROPS: Same as immediately above.

AUDIO	SCREEN	PROPS, ETC.
VO: If you look at this drawing, you see that on the Celsius Scale, water freezes at 0 degrees and boils at 100 degrees. But on the Fahrenheit scale water freezes at 32 degrees and boils at 212 degrees. That means that zero Celsius is the same as 32 Fahrenheit. It also means that 100 Celsius is the same as 212 Fahrenheit. The Celsius numbers are pretty easy to remember, but alot of people have trouble remembering the freezing and boiling temperatures for Fahrenheit. Practice usually helps people remember things like this better, so sometimes I cover up one number like this and ask what the the temperature would be on the other scale.	GRAPHIC OF ELONGATED TEMPERATURE SCALE showing 0 to 100 Celsius and 32 to 212 Fahrenheit with ice cube at one end and whistling tea kettle at the other. As he says the last part about practice, boxes cover up Fahrenheit numbers.	PROPS: None
VO: What Fahrenheit temperature is the same as 0 degrees Celsius?	GRAPHICS OF ELONGATED TEMPERATURE SCALE - same as above. NUMBER BAR INPUT.	PROPS: None
FEEDBACK: FOR CORRECT RESPONSE: Yes, you got it right. Good job. FOR INCORRECT UNPREDICTED RESPONSE: No, that's the wrong answer. Try again. FOR INCORRECT PREDICTED RESPONSE: If 0 degrees, No, that's incorrect. You want the freezing point on the Fahrenheit scale. Think snow. How cold does it have to be to snow?		

AUDIO	SCREEN	PROPS, ETC.
HOST: What Fahrenheit temperature is the same as 100 degrees Celsius?	GRAPHIC OF ELONGATED TEMPERATURE SCALE - same as above	PROPS: None
FEEDBACK: FOR CORRECT RESPONSE: Yes, that's the correct answer. Congratulations! FOR INCORRECT UNPREDICTED RESPONSE: No, that's incorrect. Keep trying. FOR INCORRECT PREDICTED RESPONSE: If 100 degrees, No, that's incorrect. You want the boiling point on the Fahrenheit scale.		
SCRIPT FOR QUIZ VOICE:		
1) **NARRATOR**: What is the temperature shown by this thermometer?	STILL OF OUTDOOR MERCURY THERMOMETER on left side of screen, registering 40 degrees. NUMBER BAR INPUT.	Outdoor yellow mercury thermometer.
2) **NARRATOR**: What is the temperature shown by this thermometer?	STILL OF OUTDOOR POINTER THERMOMETER on left side of screen, registering 60 degrees. NUMBER BAR INPUT.	Outdoor pointer thermometer.
3) **NARRATOR**: What is the temperature shown by this thermometer?	STILL OF OUTDOOR MERCURY THERMOMETER on left side of screen, registering 64 degrees. NUMBER BAR INPUT.	Outdoor mercury thermometer.
4) **NARRATOR**: What is the temperature shown by this thermometer?	STILL OF OUTDOOR POINTER THERMOMETER on left side of screen, registering 52 degrees. NUMBER BAR INPUT.	Outdoor pointer thermometer.

AUDIO	SCREEN	PROPS, ETC.
5) **NARRATOR**: What is the temperature shown by this thermometer?	STILL OF DEEP FRY THERMOMETER on left side of screen, registering 365 degrees. NUMBER BAR INPUT.	Deep fry thermometer.
6) **NARRATOR**: What is the temperature in degrees Celsius shown by this thermometer? (**NOTE**: This is the only question where both Celsius and Fahrenheit scales will show. Also, marked Fahrenheit temperature must match unmarked Celsius)	STILL OF OUTDOOR MERCURY THERMOMETER ON LEFT SIDE OF SCREEN, WITH BOTH SCALES SHOWING registering 60(?) degrees. NUMBER BAR INPUT.	
7) **NARRATOR**: What Fahrenheit temperature is the same as 0 degrees Celsius?	TEXT SCREEN. MULTIPLE CHOICE INPUT.	
8) **NARRATOR**: At what temperature does water boil?	TEXT SCREEN. MULTIPLE CHOICE INPUT.	

4/19/89 cdh

MEASURING TIME SCRIPT: TM 1 -- Telling Time

AUDIO	SCREEN	PROPS, ETC.
#1 - HOST: Time is very important for many jobs -especially in the restaurant business. It's more than getting to work on time. The workers here need to tell time in order to prepare the food - and to make sure everything is ready to serve our customers. A clock or watch is a kind of measuring instrument - used to measure time. Just like a ruler is used to measure length or a thermometer for temperature.	**#1 - MOTION**: host sitting at desk working on something; looks up and addresses camera	#1-3: existing desk/table; Arabic number wall clock [cdh]; in/out boxes; papers/ order forms, etc.; pencils/pens in holder; Arabic number watch [er?]
#2: I know a lot of people have the new digital watches, but I've found that...	#2: host starts removing analog watch from wrist	
#3: you can't beat a good old numbered watch for understanding the basics of time.	#3: host holds watch to camera to show numbers ; CU watch face in upper half of screen and square to camera	
#4 - HOST VO: There are two basic units used to measure time - hours and minutes.	**#4-GRAPHIC**:watch face;Arabic numbers; two hands; marks along outer perimeter	#4-34 [computer program graphics/text]
#5: In order to tell what time it is, you must look at the position of the hands.	#5: arrow points to hands	
#6: The shorter hand shows the hour - it's called the hour hand,...	#6: arrow points to hour hand	
#7:...and the longer hand shows the minutes - it's called the minute hand.	#7: arrow points to minute hand	
#8: The numbers on these time pieces go from 1 to 12 - and you tell the hour by looking at the number that the shorter hand is pointing to.	#8: sweeping arrow clockwise around watch face from 1	
#9: On my watch it's pointing to the 10. When one whole hour goes by, then the shorter hand will be pointing to the 11.	#9: arrow points to hour hand at 10, then sweeping arrow one rotation around numbers and points to 11	

AUDIO	SCREEN	PROPS, ETC.
#10 - HOST VO: You should remember that when about half an hour or more has passed, the shorter hand will be between two numbers. So, on my watch, around 10:30 - and later, the hour hand will be between the 10 and 11. When you say the time, though, you always use the number that the hour hand has just passed - here it would be 10. You can't say 11 until the hour hand is really pointing to the 11.	**#10 - GRAPHIC**: same watch face; solid shade right half; mottled shade up to 55 minutes; highlight lines perpendicular to 10 and 11; arrow points to hour hand	
#11: When the hour hand has pointed to each number, then 12 hours have passed. That's half of the 24 hours in a day.	#11: sweeping arrow clockwise rotation from 12 to 12	
#12: And, you know that we think of the first 12 hours as morning - or A.M., and the second 12 hours as afternoon or night - or P.M.	#12: sweeping yellow arrow clockwise labeled A.M.; '12 hours' plots as first addend; repeat with blue arrow labeled P.M.; '12 hours' plots as second addend, then plus sign, line, and '24 hours = 1 day'	
A whole hour is made up of 60 minutes. ...		
#13:...Look closely at the watch and you can see tiny marks between each of the numbers. Altogether, there are 60 marks - one for each minute in an hour.	#13: highlight marks along edge and then sweeping arrow makes rotation clockwise from 1	
#14: You tell the minutes by looking at the mark that the longer hand is pointing to. On my watch it's pointing to the third mark - or 3 minutes. When another minute goes by, then the minute hand will be pointing to the fourth mark - or four minutes.	#14: arrow points to minute hand; highlight third mark, then highlight fourth mark	
#15: When the minute hand has pointed to each mark, then 60 minutes have passed - or one whole hour.	#15: sweeping arrow makes rotation clockwise; '60 minutes = 1 hour	

AUDIO	SCREEN	PROPS, ETC.
#16 - HOST VO: You could count each mark to find out the minutes, but that can be hard when you get to higher numbers. It's easier to start your count by fives.	**#16 - GRAPHIC**: rotating highlight of minute marks	
#17: Here's how it works. From one number to the next number there are 5 marks - or 5 minutes. So, you can use the numbers from 1 to 12 to count by fives. When the minute hand is pointing to the 1, it's 5 minutes; at the 2, it's 10 minutes; at the 3, it's 15 minutes;...	#17: highlight 5 marks between 1 and 2; arrow points to 1; arrow points to 2; arrow points to 3	
#18:...20 minutes;...	#18: arrow points to 4	
#19:...25 minutes;...	#19: arrow points to 5	
#20:.. 30 minutes; and on by fives until you get to the 11, which is 55 minutes.	#20: arrow points to 6 arrow points to 11	
#21: When the minute hands points to the 12, a whole hour has passed.	#21: arrow points to 12	
#22: But, you don't say 60 minutes. Instead, you just say the next hour and o'clock. So, when someone says it's 2 o'clock or 9 o'clock, you know the minute hand is pointing to the 12.	#22: same watch face graphic hands appear at 9:00; disappear, then hands at 2:00 appear	
#23: On the watch, the minute hand is pointing to the 2, so that's 10 minutes. The hour hand is pointing to the 10, so the hour is 10.	#23: hands at 10:10; arrow points to 2; arrow points to 10;	
#24: That means the time is 10 minutes after 10. Now it's your turn to ry some examples.	#24: text of time 10:10 appears	

AUDIO	SCREEN	PROPS, ETC.
#25- HOST VO: What time does the watch show now?	**#25 - GRAPHIC**: watch face upper third of screen; set at 7 o'clock; multiple choice: • 7:00 • 7:12 • 12:35 • 12:07	
#25A - NARRATOR VO: Touch the blue dot next to the correct answer.	#25A - matching directions text overlay	
#25B - HOST VO: [CAF 7:00] Yes, that's the correct answer. Congratulations! [AWF- 12:35] No, that's the wrong answer. You mixed up the minute and hour hands. [AWF - 7:12] No, that's the wrong answer. You're using the 1 through 12 numbers for both hours and minutes. Count minutes by fives. [AWF - 12:07] No, that's the wrong answer. You mixed up the minute and hour hands, and you're using the 1 through 12 numbers for both hours and minutes. Count minutes by fives.	#25B - matching feedback text overlay	
#26- HOST VO: What time does the watch show now?	#26: watch set at 3:15; number bar entry	
#26A - NARRATOR VO: Touch the numbers on the bar to answer. Then touch enter.	#26A - matching directions text overlay	
#26B - HOST VO: [CAF 3:15] Yes, that's the right answer. You're doing a good job. [UWF] No, that's incorrect. Keep trying. [AWF - 3:00] No, your answer is incorrect. Both hands are on the same number.	#26B - matching feedback text overlay	

AUDIO	SCREEN	PROPS, ETC.
#26B- HOST VO (cont) [AWF - 3:03 - 30] No, your answer is incorrect. You're using the 1 through 12 numbers for both hours and minutes. Count minutes by fives.	**#26A- GRAPHIC** (cont): matching feedback text overlay	
#27: What time does the watch show now?	#27: watch set at 12:30; directions on screen; multiple choice: • 12:30 • 6:03 • 12:06 • 1:30	
#27A: [CAF 12:30] Yes, your answer is correct. Keep up the good work.	#27A - matching feedback text overlay	
[AWF - 12:06] No, that's incorrect. You're using the 1 through 12 numbers for both hours and minutes.Count minutes by fives		
[AWF - 1:30] No, that's incorrect. The hour hand is between two numbers, so use the number that the hand has just passed.		
[AWF - 6:03] No, that's the wrong answer. You mixed up the minute and hour hands, and you're using the 1 through 12 numbers for both hours and minutes. Count minutes by fives.		
#28: What time does the watch show now?	#28: watch set at 8:40; directions on screen; number bar entry	
#28A: [CAF 8:40] Yes, that's the right answer. Good job!	#28A - matching feedback text overlay	
[UWF] No, that's the wrong answer. Try again.		
[AWF - 9:40] No, you got it wrong. The hour hand is between two numbers, so use the number that the hand has just passed.		
[AWF - 8 or 9:00] No, you got it wrong. The minute hand isn't pointing to 12.		

AUDIO	SCREEN	PROPS, ETC.
#28A- HOST VO (cont) [AWF - 8:09 - 90] No, you got it wrong. You're using the 1 through 12 numbers for both hours and minutes. Count minutes by fives. [AWF - 9:08-80] No, you got it wrong. You mixed up the minute and hour hands, and you're using the 1 through 12 numbers for both hours and minutes. Count minutes by fives.	**#28A- GRAPHIC** (cont): matching feedback text overlay	
#29: Of course the minute hand isn't always pointing to one of the numbers on the watch. But all you have to do to tell the exact minutes is count by fives until you get to the number just before the minute hand.	#29: same watch face; text 'To tell the exact minutes, count by fives until you get to the number just before the minute hand.'	
#30: Then count by ones to the mark where the minute hand is.	#30: arrow points to minute hand	
#31: On my watch it's ... 5, 10, 15, 20 ..., 21, 22 minutes after the hour.	#31: arrow points to 1 - '5' appears; then 2 with '10'; then 3 with '15'; then 4 with '20'; then first mark with '21'; then second mark with '22 minutes'	
#32: Try a couple of examples on your own. Remember to use all the information you've learned so far.	#32: added text and hands disappear	
#33: What time does the watch show now?	#33: watch set at 11:06; directions on screen; multiple choice: • 11:06 • 1:55 • 11:01 • 1:11	
#33A: [CAF 11:06] Yes, that's the correct answer. Congratulations! [AWF- 1:55] No, that's the wrong answer. You mixed up the minute and hour hands.	#33A - matching feedback text overlay	

AUDIO	SCREEN	PROPS, ETC.
#33A- HOST VO (cont) [AWF - 11:01] No, that's the wrong answer. You're using the 1 through 12 numbers for both hours and minutes. Count minutes by fives.	**#33A- GRAPHIC** (cont): matching feedback text overlay	
[AWF - 1:11] No, that's the wrong answer. You mixed up the minute and hour hands, and you're using the 1 through 12 numbers for both hours and minutes. Count minutes by fives.		
#34: What time does the watch show now?	#34: watch set at 4:44; directions on screen; number bar entry	
#34A: [CAF 4:44] Yes, that's the right answer. You're doing a good job!	#34A: matching feedback text overlay	
[UWF] No, you got it wrong. Good luck next time.		
[AWF - 5:44] No, your answer is incorrect. The hour hand is between two numbers, so use the number that the hand has just passed.		
[AWF- 8 or 9:20 or 25] No, your answer is incorrect. You mixed up the minute and hour hands.		
[AWF - 9:04-40-05-50] No, your answer is incorrect. You mixed up the minute and hour hands, and you're using the 1 through 12 numbers for both hours and minutes. Count minutes by fives.		
[AWF - 4:09-90 or 5:09-90] No, your answer is incorrect. You're using the 1 through 12 numbers for both hours and minutes. Count minutes by fives.		

AUDIO	SCREEN	PROPS, ETC.
#35 - HOST: So, you can see, there are lots of things to remember in telling time - but if you use the information you've learned, you won't have any problems.	**#35 - MOTION**: host sitting on edge of desk, putting watch back on wrist; addressing camera	**#35-38**: clock radio [er] in any different location in kitchen; same Arabic number watch - on host's wrist
#36: There are two more - little - things I should let you in on, though.	#36: walks nearby to location of clock radio	
#37: Sometimes we use the clock radio to time things in the restaurant. All you have to do is touch the digital display until it shows the correct time.	#37: tips up radio to face camera squarely; points to display; sets radio down	
#38: My watch shows 10: 35…	#38: move to CU watch face in upper left third of screen and square to camera	
#39 - HOST VO: So, that's the time I want the radio to show. (pause) There! 10:35 is correct. You'll see how easy it is. Just touch the enter box to try the examples.	**#39-GRAPHIC**: watch showing 10: 35 in upper left 1/3 corner and radio face square to camera in upper right 2/3 of screen; 'Set the clock radio to the correct time.' and directions on screen; automatic touches of each box until 10:35 shows	#39-47 [computer program graphics/ text]
#40 - NARRATOR VO: Touch the boxes on the clock radio to set the time. Each touch will change the number in a box. When you're done, touch enter.	#40: new time on watch - 12:42; same radio; directions remain	
#40A- HOST VO (cont) [CAF 12:42] Yes, that's the right answer. Good job! [UWF] No, that's incorrect. Keep trying. [AWF - 1:42] No, that's the wrong answer. The hour hand is between two numbers, so use the number that the hand has just passed.	**#40A - GRAPHIC** : matching feedback text overlay [computer program]	

AUDIO	SCREEN	PROPS, ETC.
#40A cont: [AWF- 8 or 9:03] No, that's the wrong answer. You mixed up the minute and hour hands.		
[AWF - 8 :12 or 01-10] No, that's the wrong answer. You mixed up the minute and hour hands, and you're using the 1 through 12 numbers for both hours and minutes. Count minutes by fives.		
[AWF - 12:08-80 or 1:08-80] No, that's the wrong answer. You're using the 1 through 12 numbers for both hours and minutes. Count minutes by fives.		
#41: Set the clock radio to the correct time.	**#41-GRAPHIC** : new time on watch - 9:10; same radio; directions remain	
#41A [CAF 9:10] Yes, your answer is correct. Keep up the good work.	**#41A - GRAPHIC** : matching feedback text overlay [computer program]	
[UWF] No, that's the wrong answer. Try again.		
[AWF- 2:45] No, your answer is incorrect. You mixed up the minute and hour hands.		
[AWF - 2:09 or 90] No, your answer is incorrect. You mixed up the minute and hour hands, and you're using the 1 through 12 numbers for both hours and minutes. Count minutes by fives.		
[AWF - 9:02 or 20] No, your answer is incorrect. You're using the 1 through 12 numbers for both hours and minutes. Count minutes by fives.		

AUDIO	SCREEN	PROPS, ETC.
#42- HOST VO: The other thing you should know is the abbreviated way to write hour - or hours ...	**#42- GRAPHIC**: 'Abbreviations' appears as title; 'hour' appears on screen	
#43: ...and minutes.	#43: 'minutes' appears on screen below 'hour'	
#44: H-R-period, is the abbreviation for hour - the first and last letters - H-R,...	#44: 'hr.' appears to right of 'hour'	
#45:...and M-I-N-period, is the abbreviation for minutes - the first 3 letters - M-I-N.	#45: 'min.' appears to right of 'minutes'	
This is pretty easy, so one example for each should be enough.		
#46: Which answer shows the correct abbreviation for hour?	#46: multiple choice question and directions on screen: • 10 hr. • 10 hor. • 10 ho. • 10 hur.	
#46A: [CAF 10 hr.] Yes, that's the right answer. You're doing a good job.	#46A: matching feedback text overlay	
[AWF - all] No, that's incorrect. Remember, it's the first and last letters.		
#47: Which answer shows the correct abbreviation for minutes?	#47: multiple choice; directions on screen: • 24 min. • 24 mte. • 24 mnt. • 24 mt.	
#47A: [CAF 24 min.] Yes, that's the correct answer. Congratulations!	#47A: matching feedback text overlay	
[AWF - all] No, you got it wrong. Remember, it's the first three letters.		

4/19/89 cdh

TM-~~12~~ 11

MEASURING TIME SCRIPT: TM 2 -- Estimating Time

AUDIO	SCREEN	PROPS, ETC.
#1 - HOST: Something that almost every new worker here has to learn to do is keep track of how much time it takes to finish different jobs. It's really just a different way of thinking about the work you do. But, most of all, it's a habit. That means it's some-thing you have to practice over and over until it's an automatic thing. I've been pretty successful in helping my employees learn how to estimate their time, and I'll give you the same tips.	**#1 - MOTION**: host standing on one of the center area counters putting fruit/ vegetables in containers; looks up and addresses camera	#1-2: existing counter; bowls/baskets/ colanders; 6 grapefruit; 6 oranges; 6 potatoes; 2 paring knives; 1 peeler; paper towels & holder [cdh]; Arabic number watch [er?]
#2: First, you have to get in the habit of checking the clock - or your watch - every time you begin a job. Second, you have to check the time at some natural breaking point- like halfway - or at the end of the job. Let me show you a simple example.	#2: gestures to watch (or clock)	
#3 HOST VO: Let's say I'm just starting on breakfast prep - sorry, that's short for preparation. The job sheet tells me that one task is 4 grapefruits - peeled and carefully divided into sections.	**#3 - GRAPHIC**: 4 grapefruits in row; paring knife just forward	#3- 10: [computer program graphics/text]
#4: When I start, I look at my watch for the starting time.	#4: watch showing 5:00; 3 grapefruit still in row; 1 moved forward by knife as if in a work space	

AUDIO	SCREEN	PROPS, ETC.
#5 - HOST VO: Then, I peel and separate one of the grapefruits. I look at my watch for the stopping time. It took me 5 minutes. Now, how can I use this to figure out how long it will take me to finish the task.	**#5 - GRAPHIC:** 3 grapefruits, knife, & watch in same location; watch showing 5:05; forward grapefruit peeled & sectioned; peels in pile nearby; '5 min.' appears below peeled grapefruit	
#6: The whole task uses 4 grapefruits and I know it took me 5 minutes to do one. So, I can estimate that each other grapefruit will also take me about 5 minutes.	#6: 4 grapefruit in row - 1 peeled; '5 min.' appears below peeled grapefruit; then, '5 min.' appears below each other grapefruit (one at a time, if possible)	
#7: I can add the 4 times - 5 minutes, plus 5 minutes, plus 5 minutes, plus 5 minutes.	#7: below graphic, addition problem appears on left;	
Or, I can multiply 5 minutes times 4 grapefruits.	followed by multiplication problem on right	
#8: Either way, my estimate is 20 minutes for the whole task.	#8: same graphic/text screen; 20 appears as answer to each problem	
The basic procedure is the same, and you can use it for all kinds of tasks. Just remember to determine your starting time and finishing time for some part of the whole task, and then add or multiply to find the total time.		
Try some examples, now. But, remember, this is a habit, so try to practice on your own, too.		

AUDIO	SCREEN	PROPS, ETC.
#9 HOST VO: Peeling half the potatoes has taken 10 minutes. How many minutes will it take to peel all the potatoes?	**#9 - GRAPHIC**: 10 potatoes; 5 peeled	
#9A: [CAF 20 min] Yes, that's the correct answer. Congratulations!	#9A: matching feedback text overlay	
[UWF] No, that's incorrect. Keep trying.		
[AWF - 50 or 100 min] No, your answer is incorrect. Don't count each potato. HALF the potatoes took 10 minutes.		
[AWF - 10 min] No, your answer is incorrect. That's the time for peeling just HALF the potatoes.		
#10: Preparing the crust for one apple pie has taken 12 minutes. How many minutes will it take to prepare crust for 5 pies?	#10: 1 pie plate with crust; 4 empty pie plates; flour, rolling pin, etc.	
#10A: [CAF 60 min] Yes, you got it right. Good job!	#10A: matching feedback text overlay	
[UWF] No, that's the wrong answer. Try again.		
[AWF - 25 min] No, that's the wrong answer. You're forgetting about the 12 minutes for each crust.		

MEASURING TIME SCRIPT: TM 3 -- Determining Elapsed Time

AUDIO	SCREEN	PROPS, ETC.
#1 - HOST: After the workers get used to keeping track of how much time it takes to finish one task, they must learn how to figure out amounts of time needed to complete several jobs. Sometimes, when the amount of time is more than 60 minutes in one hour, they have to change the minutes to hours and minutes. They also have to be able to figure out when to start a job - based on the amount of time it takes -- and, when a job will be finished.	**#1 - MOTION**: host putting something in cabinet; turns around and addresses camera	#all: [computer program graphics/text]
#2: I know this sounds pretty hard, but we've come up with some rules that help in remembering what to do.	#2: starts to walk away (toward desk)	
#3 - HOST VO: Rule one: Determine the amount of time you need for each task that has to be done and ADD the times together.	**#3 - GRAPHIC**: First RULE appears on screen	
#4: For example, Eddie has to clear dirty dishes from a table, wash the table, and set it up again for the next customer. When we're busy, it's important to prepare the tables as quickly as possible. I know about how long it should take to do this job, and I wanted Eddie to learn to work fast enough. I asked him to keep track of the time for each task, so we'd know if he was making progress.	#4: table with dirty dishes; rule appears	

AUDIO	SCREEN	PROPS, ETC.
#5 - HOST VO: Eddie reported these times. 4 minutes to clear a table for 4, 1 minute to wash it, and 3 minutes to set it up again. You just add the numbers to figure out how long it took Jenny to do the job. There - 8 minutes altogether.	**#5 - GRAPHIC**: same table graphic; '4 min. to clear' appears in center of screen; followed by '1 min. to wash' below '4'; followed by '3 min. to set up' below '1'; followed by a line and '8 min.' below column of numbers	
#6: Now let's take it one more step. Eddie has to keep the work station stocked, too. It took 15 minutes to fill the silverware trays, 25 minutes to get the salt and pepper shakers and the catsup and steak sauce bottles filled, and, 35 minutes to fold the napkins. Remember, you add all the times - and it's 75 minutes altogether.	#6: counter-like graphic with silverware, bottles, salt & pepper shakers, coffee pot, napkins, etc.; '15 min. silverware' appears in center of screen; followed by '25 min. filling' below '15'; followed by '35 min. napkins' below '25'; followed by a line and '75 min. below column of numbers	
#7: Well, 75 is more than the 60 minutes in an hour. So, here's RULE TWO. When the total time is more than 60 minutes, DIVIDE the minutes by 60. The whole number answer is the number of hours, and the remainder is the number of minutes.	#7: second RULE appears on screen	
#8: So, you have to divide by 60. 60 will go into 75, 1 time. And, that's 60. Then, you just subtract to find out how many minutes are left - 15. So, it took Eddie 1 hour and 15 minutes to prepare the work station.	#8: traditional division problem 60)75 '1' appears above five in 75; then, '60' below 75; then, a line and '15' below 60	

AUDIO	SCREEN	PROPS, ETC.
#9 - HOST VO: If you have trouble with division, you can always use my repeated subtraction substitute. It works like this.	**#9 - GRAPHIC:** same counter graphic on left, labelled '75 minutes to prepare the work station'; label 'Repeated Subtraction Method' on right	
First, you need to remember that there are 60 minutes in 1 hour. Then, to change from minutes, to hours and minutes, you subtract 60 minutes - or 1 hour - at a time, until there aren't enough minutes left for another whole hour. The number remaining will be less than 60 minutes and it is the number of minutes left over. If you get a zero, that means there aren't any extra minutes.		
Here's what we'd do to figure out Eddie's time. Start with 75 minutes. We ask - Do we have 60 minutes or more? Yes, we do, so we subtract 60 minutes.	on right under label '75 minutes' appears; then, text of question -'Do I have 60 minutes or more?'; then, 'YES'; question and answer disappear and 60 appears below 75, then a line and 15 below 60	
We ask again - Do we have 60 minutes or more? No, we don't. So, this number is our remaining number of minutes.	then, text of question -'Do I have 60 minutes or more?'; then, 'NO'	
Now, we count the number of times we subtracted 60 minutes - one time. That's 1 hour. And, we have 15 minutes remaining. 75 minutes is the same as 1 hour and 15 minutes.	question and answer disappear and '1 hour' appears to right of 60 and 'minutes' appears to right of 15	
Now try an example for yourself.		

AUDIO	SCREEN	PROPS, ETC.
#10 - HOST VO: Lisa does breakfast prep and takes 30 minutes to set out all the ingredients, 50 minutes to prepare the biscuits and rolls, 20 minutes to prepare the grapefruit sections, and 30 minutes make all the orange juice and coffees.	**#10 - GRAPHIC:** numbers in column 30 20 50 30 —	
How many minutes does it take Lisa to do breakfast prep?	question on screen	
#10A: [CAF 130 min] Yes, you got it right. Good job!	#10A: matching feedback text overlay	
[UWF] No, you got it wrong. Good luck next time.		
#11: How much is 130 minutes in hours and minutes?	#11: number bar entry; question and directions on screen	
#11A: [CAF - 2 hr 10 min] Yes, you got it right. Good job!	#11A: matching feedback text overlay	
[UWF] No, that's incorrect. Keep trying.		
[AWF - 1 hr 70 min] No, your answer is incorrect. 60 goes into 130 2 times.		
[AWF - 2 hr 00 min] No, your answer is incorrect. You forgot that the remainder is the minutes left over.		
#12: If Lisa starts her job at 4:00, will she be finished in time for the breakfast crowd at 6:30?	#12: multiple choice; Remember, it took Lisa 2 hr. and 10 min. to complete her job. • yes • no	
#12A: [CAF - yes] Yes, that's the correct answer. Congratulations!	#12A: matching feedback text overlay	

AUDIO	SCREEN	PROPS, ETC.
#12A - HOST VO cont: [AWF - no] No, that's the wrong answer. 4:00 to 6:30 is 2 hours and 30 minutes. It took Lisa 2 hours and 10 minutes to do her job. So, the answer is "yes," she will be finished in time for the breakfast crowd.	**#12A - GRAPHIC cont**: matching feedback text overlay	
#13: One way to figure out how many hours and minutes there are from a starting time to a stopping time, is to begin with the start time and count 1 hour for each time the minute hand can make one complete circle until you reach the hour of the stopping time.	#13: Arabic number clock face; green hands set at 11:30; text 'START TIME - 11:30';	
For example, if you started a job at 11:30 and finished at 1:00, the minute hand would make one circle to 12:30,...	then, red hands set at 1:00 added; text 'STOP TIME - 1:00'; sweeping arrow clockwise from 6 to 6; blue hour hand added between 12 and 1	
but it couldn't make another complete circle to 1:30 because that's beyond your stopping time. So, the job took 1 hour...	another blue hour hand added between 1 and 2 and arrow at red hour hand	
and the minutes left until the stopping time - 30 minutes. Altogether, the job took 1 hour and 30 minutes.	shade half clock face from 12 to 6; text '1 hr. 30 min.'	
#14: Now, try some examples about starting and stopping times and how long jobs take to finish.	#14: number bar entry; text on screen	
If you started a job at 9:30 and finished at 11:15, how many hours and minutes did it take to do the task?	number bar and directions added	

AUDIO	SCREEN	PROPS, ETC.
#14A - HOST VO cont: [CAF - 1 hr 45 min] Yes, that's the right answer. You're doing a good job.	**#14A - GRAPHIC cont**: matching feedback text overlay	
[UWF] No, your answer is incorrect. Keep trying.		
[AWF - 2 hr] No, that's the wrong answer. If you started at 9:30, you'd have to work until 11:30 to work for 2 hours. You only worked until 11:15.		
#15: If you started a job at 10:50 and finished at 1:30, how many hours and minutes did it take to do the task?	#15: text; number bar; directions on screen	
#15A: [CAF - 2 hr 40 min] Yes, you got it right. Good job!	#15A: matching feedback text overlay	
[AWF - all] No, that's incorrect. Count forward from 10:50 to 1:30 to figure out how many whole hours there are; then add on the minutes.		
#16: If you start a job at 7:45 and it takes 2 hours and 10 minutes to do, at what time will you be finished?	#16: text; number bar; directions on screen	
#16A: [CAF - 9:55] Yes, your answer is correct. Keep up the good work.	#16A: matching feedback text overlay	
[AWF - all] No, you got it wrong. Start at 7:45 and count forward 2 hours; then add on the minutes.		

AUDIO	SCREEN	PROPS, ETC.
#17: If you need to finish a job at 4:40 and it takes 2 hours and 10 minutes to do, at what time should you start?	**#17 - GRAPHIC**: text; number bar; directions on screen	
#17A: [CAF - 12:30] Yes, that's the right answer. You're doing a good job. [AWF - all] No, that's the wrong answer. Start at 4:40 and count backwards 2 hours; then add on the minutes.	#17A: matching feedback text overlay	
#18: If you need to finish a job at 5:00, and one task takes 1 hour to do and another task takes 4 hours, at what time should you start?	#18: text; number bar; directions on screen	
#18A: [CAF - 12:00] Yes, that's the correct answer. Congratulations! [AWF - all] No, that's the wrong answer. Start at 5:00 and count backwards 1 hour; then count back 4 more hours.	#18A: matching feedback text overlay	

AUDIO	SCREEN	PROPS, ETC.
QUIZ **Q1 - HOST VO**: What time does the watch show now?	**Q1 - GRAPHIC**: watch face upper third of screen; set at 10:06; multiple choice; directions on screen: • 10:06 • 1:50 • 10:01 • 1:10	Q1-10: [computer program graphics/text]
Q2: Baking one batch of cookies has taken 8 minutes. How many minutes will it take to bake 6 batches of cookies?	**Q2 - GRAPHIC**: cookies on cookie sheet with steam rising - labelled '8 min.'; bowl with dough, etc.; number bar; directions on screen	
Q3: Ben has to complete 4 tasks in order to close the restaurant at night: one task takes 45 minutes, another takes 20 minutes, another takes 30 minutes, and the last one takes 55 minutes.	**Q3 - GRAPHIC**: new time on watch- 12:38; touch box entry; directions on screen	
Q4: How many minutes does it take Ben to do his job?	**Q4 - GRAPHIC**: numbers in column 45 question on screen; 20 number bar; directions on 30 screen 55	
Q5: How much is 150 minutes in hours and minutes?	**Q5 - GRAPHIC**: number bar entry; question	
Q6: If Ben starts his job at 11:00, will he be able to go home at 1:30?	**Q6 - GRAPHIC**: multiple choice; Remember, it took Ben 2 hr. and 30 min. to complete his job. • yes • no	
Q7: If you need to finish a job at 11:05, and it takes 4 hours and 50 minutes, at what time will you be finished?	**Q7- GRAPHIC**: text; number bar; directions, Arabic number clock face (maybe misc. graphics) on screen	
Q8: If you need to finish a job at 6:00, and one task takes 3 hours to do and another task takes 1 hour, at what time should you start?	**Q8- GRAPHIC**: text; number bar; directions, Arabic number clock face (maybe misc. graphics) on screen	

AUDIO	SCREEN	PROPS, ETC.
QUIZ cont		
Q9: What time does the watch show now?	**Q9 - GRAPHIC**: same; set at 3:45; number bar; directions on screen	Q1-10: [computer program graphics/text]
Q10: Set the clock radio to the correct time.	**Q10: - GRAPHIC:** multiple choice; directions on screen: • 3 hr. • 3 hor. • 3 ho. • 3 hur.	

FINAL

4/21/89 cdh MV-1

MONEY VALUES & RELATIONSHIPS SCRIPT: MV 1 -- Reading & Writing Money Decimals

AUDIO	SCREEN	PROPS, ETC.
#1 - HOST: Money is pretty important in our lives, so it's smart to know a lot about it. Our money system is based on dollars and cents. We usually write money numbers with a dollar sign and a decimal point.	**#1 - MOTION**: host sitting at desk counting money; looks up and addresses camera	#1: existing desk/table; wall clock [cdh]; in/out boxes; papers/ order forms, etc.; pencils/pens in holder; reasonable number of bills and coins; maybe cash drawer
#2 - HOST VO: We start with the dollar sign followed by the number for whole dollars, then the decimal point, and then the number for the cents.	**#2-GRAPHIC**: text at top and $ 20.75 in center; arrow points to each item as mentioned	
#3: Look at this number and touch the number of dollars.	#3: text at top and $155.23 in center	
#3A: [CAF 155] Yes, that's the correct answer. Congratulations!		
[AWF- 23] No, you got it wrong. That's the cents.		
Now touch the number of cents.		
#3B: [CAF 23] Yes, that's the right answer. Good job!		
[AWF- 155] No, your answer is incorrect. That's the dollars.		
#4: When we say an amount of money - or write it in words, we always read the dollar amount first followed by the word "dollars." If there are both dollars and cents, we read the decimal point as "and" followed by the word "cents."	#4: text at top and $ 20.75 in center; then, twenty dollars and seventy-five cents	

532

531

AUDIO	SCREEN	PROPS, ETC.
#5 - HOST VO: Which answer means the same thing as 155 dollars and 23 cents?	**#5 - GRAPHIC**: question and directions on screen; multiple choice: • one hundred fifty five dollars and twenty-three cents • twenty three dollars and fifty-five cents • one hundred fifty five dollars • fifteen dollars and fifty-two cents	
#5A - NARRATOR VO: Touch the blue dot next to the correct answer.		
#5B - HOST VO: [CAF words $155.23] Yes, your answer is correct. Keep up the good work.		
[AWF- words $23.55] No, that's the wrong answer. You're reading the cents as dollars.		
[AWF - words $155] No, that's the wrong answer. You forgot the cents.		
[AWF - words $15.52] No, that's the wrong answer. Always look carefully at the decimal point.		
#6: If there aren't any cents, we just read the dollar amount and the word "dollars."	#6: text at top and $ 25.00 in center; then, twenty-five dollars	
#7: Which answer means the same thing as 97 dollars?	#7: question and directions on screen; multiple choice: • $ 97.00 • $ 9.70 • $ 9700.00 • $ .97	
#7A: [CAF words $97] Yes, your answer is correct. Keep up the good work.		
[AWF- words $9.70] No, you got it wrong. There aren't any cents.		
[AWF - words $9700 or $ .97] No, you got it wrong. Always look carefully at the decimal point.		

AUDIO	SCREEN	PROPS, ETC.
#8 - HOST VO: If the amount is only cents, we can write it two ways. The first uses the dollar sign followed by the decimal point and then the cents. The second way uses a cent sign.	**#8 - GRAPHIC**: text at top and $ .75 in center; then, 75 c	
#9: Which answer means the same thing as 63 cents? #9A: [CAF $ .63] Yes, that's the right answer. You're doing a good job. [AWF - $63.00] No, your answer is incorrect. Cents come after the decimal point. [AWF - $6.30] No, your answer is incorrect. There are no dollars - only cents. [AWF - $ .36] No, your answer is incorrect. You reversed the numbers.	#9: question and directions on screen; multiple choice: • $ .63 • $ 6.30 • $ 63.00 • $ .36	
#10: Which answer means the same thing as the amount written below? #10A: [CAF words $ .78] Yes, that's the right answer. Good job! [AWF - words $78.00] No, that's the wrong answer. Cents come after the decimal point. [AWF - words $7.80] No, that's the wrong answer. There are no dollars - only cents. [AWF - words $ .87] No, that's the wrong answer. You reversed the numbers.	#10: question and directions on screen; multiple choice: • seventy-eight cents • seventy-eight dollars • seven dollars and eighty cents • eighty-seven cents	

MONEY VALUES & RELATIONSHIPS SCRIPT: MV 2 -- Reading & Writing Money Decimals

AUDIO	SCREEN	PROPS, ETC.
#1 - HOST VO: In our money system, the penny is the smallest coin and the dollar is the smallest bill. It takes 100 pennies to equal one dollar.	**#1 - GRAPHIC**: penny and dollar at top; 100 pennies piled together = dollar bill	
#2: It would be hard to carry around only pennies, though. So, we have other coins. The most common ones are the nickel, the dime, and the quarter. Each of these coins is the same as a certain number of pennies. The nickel equals 5 pennies; the dime - 10 pennies; and the quarter - 25 pennies. You try some examples now.	#2: nickel, dime, quarter at top; equivalent pennies = @	
#3: How many pennies equal 1 nickel?	#3: penny and nickel; question and directions on screen; number bar	
#3A - NARRATOR VO: Touch the numbers on the bar to answer. Then touch enter.		
#3B - HOST VO: [CAF 5] Yes, that's the correct answer. Congratulations! [UWF] No, that's incorrect. Keep trying.		
#4: How many pennies equal 1 dime?	#4: penny and nickel; question and directions on screen; number bar	
#4A: [CAF 10] Yes, that's the right answer. Good job! [UWF] No, your answer is incorrect. Keep trying.		

AUDIO		PROPS, ETC.
#5 - HOST VO: How many pennies equal 1 quarter? #5A: [CAF 25] Yes, that's the right answer. You're doing a good job! [UWF] No, you got it wrong. Good luck next time.	**#5 - GRAPHIC**: penny and quarter; question and directions on screen; number bar	
#6: How many pennies equal 1 dollar? #6A: [CAF 100] Yes, that's the right answer. Good job! [UWF] No, your answer is incorrect. Keep trying.	#6: penny and dollar; question and directions on screen; number bar	
#7: Even though we use names like nickel and quarter, when we write these coins as numbers, we write the number of pennies in each, like this. Or, sometimes like this.	#7: graphic of each coin; name; notation first, plot dollar sign & decimal point second, plot cent sign	
#8: We use these coins so often that it's important to know certain common equivalencies: • 2 nickels equal 1 dime, • 20 nickels equal 1 dollar, • 10 dimes equal 1 dollar, and • 4 quarters equal 1 dollar. Your turn for some examples .	#8: nickel, dime, quarter, dollar at top; @ = equivalent coins	
#9: How many nickels equal 1 dime?	#9: nickel and dime; question and directions on screen; touch the object	
#9A - NARRATOR VO: Touch the coin as many times as you need. When you're done, touch enter.		

AUDIO	SCREEN	PROPS, ETC.
#9B - HOST VO: [CAF 2] Yes, that's the correct answer. Congratulations!		
[UWF] No, that's incorrect. Keep trying.		
#10: How many nickels equal 1 dollar?	**#10 - GRAPHIC**: nickel and dollar; question and directions on screen; touch the object	
#10A: [CAF 20] Yes, that's the right answer. Good job!		
[UWF] No, your answer is incorrect. Keep trying.		
#11: How many dimes equal 1 dollar?	#11: dime and dollar; question and directions on screen; touch the object	
#11A: [CAF 10] Yes, that's the right answer. You're doing a good job!		
[UWF] No, you got it wrong. Good luck next time.		
#12: How many quarters equal 1 dollar?	#12: quarter and dollar; question and directions on screen; touch the object	
#12A: [CAF 4] Yes, that's the right answer. Good job!		
[UWF] No, your answer is incorrect. Keep trying.		
#13: We also have 4 common bills - the dollar, 5 dollar, 10 dollar, and 20 dollar bills. The name of each bill gives away its value, so it's easy to tell how many 1 dollar are in a larger bill.	#13: amount in ones = @	

AUDIO	SCREEN	PROPS, ETC.
#14 - HOST VO: There are also common equivalencies for our bills that you need to know: • 2 fives equal 1 ten, • 4 fives equal 1 twenty, and • 2 tens equal 1 twenty. Okay, you try some examples.	**#14 - GRAPHIC**: five, ten, twenty at top; @ = equivalent bills	
#15: How many 1 dollar bills equal 10 dollars? #15A: [CAF 10] Yes, that's the right answer. You're doing a good job! [UWF] No, that's the wrong answer. Try again.	#15: one and ten; question and directions on screen; touch the object	
#16: How many 5 dollar bills equal 10 dollars? #16A: [CAF 2] Yes, that's the correct answer. Congratulations! [UWF] No, you got it wrong . Good luck next time.	#16: five and ten; question and directions on screen; touch the object	
#17: How many 5 dollar bills equal 20 dollars? #17A: [CAF 4] Yes, your answer is correct. Keep up the good work. [UWF] No, your answer is incorrect. Keep trying.	#17: five and twenty; question and directions on screen; touch the object	

AUDIO	SCREEN	PROPS, ETC.
#18: How many 10 dollar bills equal 20 dollars?	**#18 - GRAPHIC**: ten and twenty; question and directions on screen; touch the object	
#18A: [CAF 2] Yes, that's the right answer. Good job!		
[UWF] No, that's incorrect. Keep trying.		

AUDIO	SCREEN	PROPS, ETC.
#1 - HOST: Every day we have to count the cash we have on hand at the restaurant. The easiest way to do this is to put the coins and bills in separate piles by their values. Count each pile into whole dollars. And, then count the remaining money.	**#1 - MOTION**: host sitting at desk doing books; pile of 25 nickels, 37 dimes, 7 quarters, and some number of pennies and bills; looks up and addresses camera	#1: existing desk/table; wall clock [cdh]; in/out boxes;papers/order forms, etc.; pencils/pens in holder; ledger; 25 nickels, 37 dimes, 7 quarters, some pennies and bills
#2: Let me show you a simple example. I already have a pile of nickels, and I want to know how much I have in dollars and cents. I remember that 20 nickels equal 1 dollar. So, I want to count groups of 20 nickels.	#2: puts book aside and slides pile of nickels into space in front of him	
#3: [this can be fairly rapid] 1-2-3-4-5-6-7-8-9-10-11-12-13-14-15-16-17-18-19-20. There's one group	#3: MCU as counts 20 nickels and slides into separate, compact group leaving 5 distinct nickels in original space	
#4: But, the nickels left don't look like they'll make another group. To find their value, I just count by fives, since each nickel is worth 5 pennies. So, I have the one pile I counted -- that's 1 dollar -- and 5-10-15-20-25 cents.	#4: gestures to 5 nickels gestures to compact pile; counts by fives	
#5: Okay, you count the pile of dimes.	#5: slides all nickels to side and slides pile of dimes into space in front of him	
#5A - NARRATOR VO: Touch a coin to put it in a group. When you have enough coins in the group to equal $1.00, touch the dollar sign box. Keep going until you have all the one-dollar groups you want. Then touch enter.	**#5A - GRAPHIC**: graphics and directions on screen; new grouping entry	
#5B-HOST VO: [CAF 3 groups -100] Yes, that's the correct answer. Congratulations!		

AUDIO	SCREEN	PROPS, ETC.
#5B cont - HOST VO: [UWF] No, your answer is incorrect. Keep trying. [AWF] No, your answer is incorrect. At least one of your piles has less than one dollar in it. [AWF] No, your answer is incorrect. At least one of your piles has more than one dollar in it. #6: How much money is there in dollars and cents?	**#6 - GRAPHIC**: same screen as answer for #5, except number bar replaces previous directions	
#6A - NARRATOR VO: Touch the numbers on the bar to answer. Then touch enter.		
#6B - HOST VO: [CAF $3.70] Yes, that's the right answer. Good job! [UWF] No, that's incorrect. Keep trying. [AWF] No, that's incorrect. You miscounted the change left in the pile. #7: Now count the pile of quarters.	#7: graphics and directions on screen; new grouping entry	
#7A - NARRATOR VO: Touch a coin to put it in a group. When you have enough coins in the group to equal $1.00, touch the dollar sign box. Keep going until you have all the one-dollar groups you want. Then touch enter.		
#7B-HOST VO: [CAF 1 group - 100] Yes, that's the right answer. You're doing a good job!		

AUDIO	SCREEN	PROPS, ETC.
#7B - HOST VO cont: [CAF 1 group - 100] Yes, that's the right answer. You're doing a good job! [UWF] No, you got it wrong. Good luck next time. [AWF] No, you got it wrong. At least one of your piles has less than one dollar in it. [AWF] No, you got it wrong. At least one of your piles has more than one dollar in it. #8: How much money is there in dollars and cents?	#8: same screen as answer for #7, except number bar replaces previous directions	
#8A - NARRATOR VO: Touch the numbers on the bar to answer. Then touch enter.		
#8B - HOST VO: [CAF $1.75] Yes, you got it right. Good job! [UWF] No, that's incorrect. Keep trying. [AWF] No, that's incorrect. You miscounted the change left in the pile.		
#9 - HOST: Of course you know that we don't always receive just dimes or just quarters. We have all the types of coins to count. But, finding the total amount works in the same way. I've already counted out all the one-dollar groups I can make. Now, I want to count the coins that were left over.	**#9 - MOTION**: same desk/table; host doing something with money; distinct piles of 4 quarters, 10 dimes, and 20 nickels; left over coins -- 1 quarter, 2 dimes, 1 nickel, 3 pennies -- in same area but not as distinct group; several bills in background; gestures to each group and left overs	

AUDIO	SCREEN	PROPS, ETC.
#9 HOST cont: Watch how I do it. Count the quarters first -- they're the largest value. There's just one, so I start counting at 25 cents.	**#9A - MOTION cont**: looks up and then touches quarter -- in front of him	
#10: A dime equals 10 cents, and I have 2 dimes . I had 25 cents, and now it's 35-45	#10: touches each dime and slides into group with quarter	
#11: There's one nickel or 5 cents. I was at 45 , so now it's 50 cents.	#11: touches nickel and slides into group with previous coins	
#12: And, there are 3 pennies at one cent each for 51-52-53 -- 53 cents. Altogether, in coins, I have 3 dollars ... and 53 cents. Try counting a pile of coins.	#12: touches each penny and slides into group with previous coins; gestures to each one-dollar group and then to left overs now in their own group	
#13 - NARRATOR VO: Touch a coin to put it in a group. When you have enough coins in the group to equal $1.00, touch the dollar sign box. Keep going until you have all the one-dollar groups you want. Then touch enter.	**#13 - GRAPHIC**: graphics and directions on screen; new grouping entry	
#13B - HOST VO: [CAF 2 groups - 100] Yes, your answer is correct. Keep up the good work. [UWF] No, that's the wrong answer. Try again. [AWF] No, your answer is incorrect. At least one of your piles has less than one dollar in it. [AWF] No, your answer is incorrect. At least one of your piles has more than one dollar in it.		

AUDIO	SCREEN	PROPS, ETC.
#14 - HOST VO: How much money is there in dollars and cents?	**#14 - GRAPHIC**: same screen as answer for #10, except number bar replaces previous directions	
#14A: [CAF $2.73] Yes, you got it right. Good job!		
[UWF] No, your answer is incorrect. Keep trying.		
[AWF] No, that's incorrect. You miscounted the change left in the pile.		
#15: When we have bills to count with the coins, we get the total by counting the bills first and then adding that amount to what we get when we count the coins.	#15: 1 ten, 1 five, and 1 one and mixture of all types of coins graphics and directions on screen; number bar entry	
#16: First, count the amount of money in bills. How much money is that?	#16: same screen as answer for #15, except new grouping entry replaces previous number bar	
#16B: [CAF $16.00] Yes, your answer is correct. Keep up the good work.		
[UWF] No, you got it wrong. Good luck next time.		
#17: Now, count the amount of money in coins.	#17: same screen as answer for #16, except number bar replaces previous directions	
#17A - NARRATOR VO: Touch a coin to put it in a group. When you have enough coins in the group to equal $1.00, touch the dollar sign box. Keep going until you have all the one-dollar groups you want. Then touch enter.		
#17B - HOST VO: [CAF 2 groups - 100] Yes, that's the right answer. You're doing a good job!		

AUDIO	SCREEN	PROPS, ETC.
#17A - HOST VO [UWF] No, that's the wrong answer. Try again.		
[AWF] No, you got it wrong. At least one of your piles has less than one dollar in it.		
[AWF] No, you got it wrong. At least one of your piles has more than one dollar in it.		
#18: How much money is there altogether in dollars and cents?	**#18 - GRAPHIC**: same screen as answer for #17, except number bar replaces previous directions	
#18A: [CAF $18.47] Yes, that's the correct answer. Congratulations!		
[UWF] No, your answer is incorrect. Keep trying.		
[AWF] No, that's incorrect. You miscounted the change left in the pile.		

MONEY VALUES & RELATIONSHIPS SCRIPT: MV 4 -- Making Change

AUDIO	SCREEN	PROPS, ETC.
#1 - HOST: Making change is something that all the waiters and waitresses have to do. And, I want them to be right every time. We don't want to cheat our customers OR ourselves. This is a small business, and we don't have one of those cash registers that automatically shows the amount of change to give.	**#1 - MOTION**: host sitting at desk doing books; has pencil/pen in hand; looks up and addresses camera	#1: existing desk/table; wall clock [cdh]; in/out boxes; papers/order forms, etc.; pencils/pens in holder; ledger; blank pad of paper
#2: We keep paper and pencils by our cash register so we can just subtract the amount of the bill from the amount of money a customer gives us. Like this: If a customer gave me a 10-dollar bill to pay for a 4-dollar and 65 cent bill. I'd just subtract to figure out the change due -- 5 dollars and 35 cents You try some examples now.	#2: reaches up and pulls blank pad of paper into space in front of him; writes: $10.00 - 4.65 5.35	
#3: For a bill of $1.37, how much change should you give from a 5-dollar bill?	**#3 - GRAPHIC**: subtraction problem: $5.00 - 1.37	
#3A - NARRATOR VO: Touch the numbers on the bar to answer. When you're done, touch enter.	number bar entry	
#3B - HOST VO: [CAF $3.63] Yes, that's the correct answer. Congratulations! [UWF] No, that's incorrect. Keep trying.		
#4: For a bill of $ .33, what should you do to figure out the change to give from a 1-dollar bill?	#4: graphic of 1-dollar bill and written bill for $ .33; multiple choice • subtract $ .33 from $1.00 • subtract $1.00 from $ .33 • add $1.00 and $ .33 • multiply $ .33 times $1.00	

AUDIO	SCREEN	PROPS, ETC.
#4A - NARRATOR VO: Touch the blue dot next to the correct answer.		
#4B HOST VO: [CAF subtract $ .33 from $1.00] Yes, that's the right answer. Good job! [AWF - add or multiply] No, your answer is incorrect. You will give back less money. [AWF - subtract $1.00 from $.33] No, your answer is incorrect. You want to subtract the amount of the bill from the dollar.		
#5: Work this problem to find out how much change you should give.	**#5 - GRAPHIC**: pcorrect rocedure plots in center of screen; number bar entry	
#5A: [CAF $ .67] Yes, that's the right answer. You're doing a good job! [UWF] No, you got it wrong. Good luck next time.		
#6: When you give change, you should try to give the customer the fewest possible pieces of money. This means that you want to use the largest coins and bills you can when making change.	#6: graphic of money	
#7: Which picture shows the best coins to use when giving $ .81 in change?	#7: small graphics of coins; multiple choice: • 3 quarters, 1 nickel, 1 penny • 8 dimes, 1 penny • 6 dimes, 4 nickels, 1 penny • 2 quarters, 3 dimes, 1 penny	
#7A: [CAF 3 quarters, 1 nickel, 1 penny] Yes, that's the right answer. Good job! [AWF - all] No, your answer is incorrect. Remember, you want to use the fewest possible coins.		

AUDIO	SCREEN	PROPS, ETC.
#7 HOST VO: Here's one strategy you can use to try to give the customer the fewest possible coins in change. Always start with the largest coin that isn't more valuable than the amount of change due. That's easy to understand because the more valuable a coin is, the fewer of them you need to get to the total. Usually, this will be the quarter -- 25 cents.	**#7 - GRAPHIC**: all coins each with clear value and name label; title - "Use the fewest possible coins in giving change"	
#8: Remember the quarter equivalencies you learned: • 2 quarters equal 50 cents, • 3 quarters equal 75 cents, and • 4 quarters equal 1 dollar. Let me show you the procedure: After you take each coin, ask yourself if taking another of the same coin will put you over the amount of change due. Try this example.	#8: title: "Quarter Equivalencies"; graphics = text: 2 quarters = 50 cents, 3 quarters = 75 cents, 4 quarters = $1.00	
#9: Should you add another quarter to make the 67 cents in change? Remember, ask yourself if adding another quarter will put you over the amount of change due. If it won't, then go ahead and add it. If it will, move on to the next most valuable coin -- the dime.	#9: graphic of all coins at top; "The change needed is $ .67. 1 quarter has been counted out. Should you give another quarter to make the change?" 1 quarter graphic below question; yes-no blue dot question	
#9A: [CAF yes] Yes, that's the right answer. Good job! [AWF no] No, your answer is incorrect. Adding one more quarter will equal 50 cents -- less than the 67 cents in change needed.		

AUDIO	SCREEN	PROPS, ETC.
#10 - HOST VO: Should you add another dime to make the 67 cents in change? Remember, ask yourself if adding another dime will put you over the amount of change due. If it won't, then go ahead and add it. If it will, move on the next most valuable coin -- the nickel.	**#10 - GRAPHIC**: graphic of all coins at top; "The change needed is $ .67. 2 quarters and 1 dime have been counted out. Should you give another dime to make the change?" 2 quarters and 1 dime graphic below question; yes-no blue dot question	
#10A: [CAF no] Yes, your answer is correct. Keep up the good work. [AWF yes] No, you got it wrong. Adding one more dime will equal 70 cents -- more than the 67 cents in change needed.		
#11: Should you add another nickel to make the 67 cents in change?	#11: graphic of all coins at top; "The change needed is $ .67. 2 quarters, 1 dime, and 1 nickel have been counted out. Should you give another nickel to make the change?" 2 quarters, 1 dime, and 1 nickel graphic below question; yes-no blue dot question	
#11A: [CAF no] Yes, you got it right. Good job! [AWF yes] No, that's the wrong answer. Adding one more nickel will equal 70 cents -- more than the 67 cents in change needed.		
#12: Should you add another penny to make the 67 cents in change?	#12: graphic of all coins at top; "The change needed is $ .67. 2 quarters, 1 dime, 1 nickel, and 1 penny have been counted out. Should you give another penny to make the change?" 2 quarters, 1 dime, 1 nickel, and 1 penny graphic below question; yes-no blue dot question	
#12A: [CAF yes] Yes, that's the correct answer. Congratulations! [AWF no] No, that's incorrect. Adding one more penny will equal 67 cents -- the exact amount of change needed.		
#13: Use the fewest possible coins to make 48 cents in change.	#13: graphic of all coins at top; question and directions on screen; touch the object	

AUDIO	SCREEN	PROPS, ETC.
#13A - NARRATOR VO: Touch a piece of money as many times as you need. When you're done, touch enter.		
#13B - HOST VO: [CAF 1 quarter, 2 dimes, 3 pennies] Yes, that's the correct answer. Congratulations! [UWF] No, your answer is incorrect. Keep trying. [AWF 1 quarter, 1 dime, 2 nickels, 3 pennies or 4 dimes, 1 nickel, 3 pennies or 9 nickels, 3 pennies] No, your answer is incorrect. You want to use the fewest possible coins.		
#14: When the change due is more than a dollar, then the change will include bills. The procedure is almost the same -- except you'll be using bills, too. Always start with the largest bill that isn't more valuable than the amount of change due. Then you just work down through the different bills until you have the same amount as the dollars in the change you need. Try this example:	**#14 - GRAPHIC**: 20, 10, 5, and 1 bills each with clear value and name label; title - "Use the fewest possible bills in giving change"	
#15: Should you use a 20-dollar bill when the change due is $17.42? Remember, ask yourself if using a 20-dollar bill will put you over the amount of dollars due. If it won't, then go ahead and use it. If it will, move on the next most valuable bill -- the 10-dollar bill.	#15: graphic of all bills at top; "The change needed is $17.42. Should you use a 20-dollar bill to make the change?"; yes-no blue dot question	
#15A: [CAF no] Yes, that's the right answer. You're doing a good job!		

AUDIO	SCREEN	PROPS, ETC.
#15A HOST VO cont: [AWF yes] No, you got it wrong. 20 dollars is more than the 17 dollars in change needed.		
#16: Should you use a 10-dollar bill when the change due is $17.42?	**#16 - GRAPHIC**: graphic of all bills at top; "The change needed is $17.42. Should you use a 10-dollar bill to make the change?"; yes-no blue dot question	
#16A: [CAF yes] Yes, your answer is correct. Keep up the good work.		
[AWF no] No, your answer is incorrect. 10 dollars is the largest bill you can use that is less than the 17 dollars in change needed.		
#17: Should you add another 5-dollar bill to make the $17.42 in change?	#17: graphic of all bills at top; "The change needed is $17.42. 1 $10 and 1 $5 have been counted out. Should you give another 5-dollar bill to make the change?" 1 $10 and 1 $5 graphic below question; yes-no blue dot question	
#17A: [CAF no] Yes, that's the right answer. You're doing a good job.		
[AWF yes] No, that's the wrong answer. Adding 5 dollars will equal 20 dollars -- more than the 17 dollars in change needed.		
#18: Should you add another 1-dollar bill to make the $17.42 in change?	#18: graphic of all bills at top; "The change needed is $17.42. 1 $10, 1 $5, and 1 $1 have been counted out. Should you give another 1-dollar bill to make the change?" 1 $10, 1 $5, and 1 $1 graphic below question; yes-no blue dot question	
#18A: [CAF yes] Yes, you got it right. Good job!		
[AWF no] No, you got it wrong. Adding 1 dollar will equal 17 dollars -- the exact amount of dollars in change needed.		
#19: You have all the bills you need to make $17.42 in change. Now finish the problem by figuring out the coins needed for the 42 cents in change.	#19: graphic of all bills and coins at top; 1 $10, 1 $5, and 2 $1 graphics = $17.00 text; ? graphic = $ .42 text	

AUDIO	SCREEN	PROPS, ETC.
#20: Should you use a quarter to make the 42 cents in change? #20A: [CAF yes] Yes, your answer is correct. Keep up the good work. [AWF no] No, your answer is incorrect. A quarter is the largest coin you can use that is less than the 42 cents needed.	**#20 - GRAPHIC**: graphic of all coins at top; "The change needed is $17.42. 1 $10, 1 $5, and 2 $1 bills have been counted out and are plotted below question. Should you use a quarter to make the change?" yes-no blue dot question	
#21: Should you use a dime to make the 42 cents in change? #21A: [CAF yes] Yes, your answer is correct. Keep up the good work. [AWF no] No, you got it wrong. Adding a dime will equal 35 cents -- less than the 42 cents in change needed.	#21: graphic of all coins at top; "The change needed is $17.42. 1 $10, 1 $5, and 2 $1 bills, and 1 quarter have been counted out and are plotted below question. Should you use a dime to make the change?" yes-no blue dot question	
#22: Should you use a nickel to make the 42 cents in change? #22A: [CAF yes] Yes, you got it right. Good job! [AWF no] No, that's the wrong answer. Adding a nickel will equal 40 cents -- less than the 42 cents in change needed.	#22: graphic of all coins at top; "The change needed is $17.42. 1 $10, 1 $5, and 2 $1 bills, and 1 quarter and 1 dime have been counted out and are plotted below question. Should you use a nickel to make the change?" yes-no blue dot question	

AUDIO	SCREEN	PROPS, ETC.
#23 - HOST VO: How many pennies are needed to make the 42 cents in change? #23A: [CAF 2] Yes, that's the correct answer. Congratulations! [AWF 0 or 1] No, you got it wrong. That's not enough pennies. [AWF 3+] No, you got it wrong. That's too many pennies.	**#23 GRAPHIC**: graphic of all coins at top; 1 $10, 1 $5, and 2 $1 bills, and 1 quarter, 1 dime, and 1 nickel have been counted out and are plotted below question. question and directions on screen; touch the object	
#24: Try two problems on your own. Use the fewest possible pieces of money to make $7.83 in change. #24A: [CAF 1 $5, 2 $1, 3 quarters, 1 nickel, 3 pennies] Yes, you got it right. Good job! [AWF] No, that's the wrong answer. You want to use the fewest possible pieces of money.	#24: graphic of all bills and coins at top; question and directions on screen; touch the object	
#25: Use the fewest possible pieces of money to make $18.91 in change. #25A: [CAF 1 $10, 1 $5, 3 $1, 3 quarters, 1 dime, 1 nickel, 1 penny] Yes, that's the correct answer. Congratulations! [AWF] No, your answer is incorrect. You want to use the fewest possible pieces of money.	#25: graphic of all bills and coins at top; question and directions on screen; touch the object	

5/1/89 cdh MV-23

MONEY VALUES & RELATIONSHIPS SCRIPT: MV 5 — Quiz

AUDIO	SCREEN	PROP'S, ETC.
#1 - **NARRATOR VO:** Which answer means the same thing as 125 dollars and 75 cents?	#1 - **GRAPHIC:** question and directions on screen; multiple choice: • one hundred twenty five dollars and seventy-five cents • seventy five dollars and twenty-five cents • one hundred twenty five dollars • twelve dollars and fifty-seven cents	mVQ1
#2: How many pennies equal 1 dime?	#2: penny and nickel; question and directions on screen; number bar	mVQ2.
#3: How many nickels equal 1 dollar?	#3: nickel and dollar; question and directions on screen; touch the object	mVQ3
#4: How many 5 dollar bills equal 20 dollars?	#4: five and twenty; question and directions on screen; touch the object	mVQ4
#5: Count the pile of coins.	#5: 3quarters, 7 nickels, 3 pennies($1.13) graphics and directions on screen; new grouping entry	mVQ5
#6: How much money is there in dollars and cents?	#6: same screen as answer for #5, except number bar replaces previous directions	mVQ6
#7: Count the amount of money in bills. How much money is that?	#7: 1 ten, 2 fives, and 3 ones and mixture of all types of coins graphics and directions on screen; number bar entry	mVQ7
#8: Now, count the amount of money in coins.	#8: same screen as answer for #7, except new grouping entry replaces previous number bar	mVQ8
#9: How much money is there altogether in dollars and cents?	#9: same screen as answer for #8, except number bar replaces previous directions	mVQ9

AUDIO	SCREEN	PROPS, ETC.
#10 - NARRATOR VO: Which picture shows the best coins to use when giving $ .43 in change?	**#10 - GRAPHIC:** small graphics of coins; multiple choice: • 1 quarter, 1 dime,1 nickel, 3 pennies • 4 dimes, 3 pennies • 3 dimes, 2 nickels, 3pennies • 1 quarter, 3 nickels, 3 pennies	MVQ10
#11: Should you add another penny to make the 88 cents in change?	#11: graphic of all coins at top; "The change needed is $ .88. 3 quarters, 1 dime, and 1 penny have been counted out. Should you give another penny to make the change?" 3 quarters, 1 dime, and 1 penny graphic below question; yes-no blue dot question	MVQ11
#12: Should you use a 5-dollar bill when the change due is $14.19?	#12: graphic of all bills at top; "The change needed is $14.19. Should you use a 5-dollar bill to make the change?"; yes-no blue dot question	MVQ12
#13: Use the fewest possible pieces of money to make $8.68 in change.	#13: graphic of all bills and coins at top; question and directions on screen; touch the object	MVQ13

regular feedback here
track 2 audio
also menu messages

FINAL

Audio	Screen	Props
Host: Your earnings are the money you're paid for the work you do.	Motion Host in office, with money and stack of checks on the desk, calendar.	Money and checks, calendar.
Your wage is the amount you're paid for one hour's work.		
Host VO: But often we talk about pay as a weekly or yearly amount. Eight hours a day times five days is forty hours per week. This is the standard work week for most full-time jobs.	Text screen, on right of screen 8 Hours per day x 5 Days per week ---- 40 Hours per week	
From your hourly rate, you can easily figure your weekly rate. Just multiply your hourly rate by the number of hours you work in a week. This amount is your base or regular pay.	Base pay is: dollars per hour x hours per week --------------- dollars per week	

FINAL

Suppose you are paid $7.00 an hour, and you work 40 hours a week. Multiplying the two figures, you get $280 per week.	Text screen: 7.00 per hour x 40 hours per week --------------------- 280.00 per week
Now you try one. How much will you earn each week if you work 40 hours a week, and you make $6.00 per hour?	
NARRATOR VO: Touch the Numbers on the Bar to answer. When you're done, touch ENTER.	Text screen. Number bar question: 6 dollars per hour x 40 hours per week -------------------- dollars per week
Host VO (240.00): Yes, that's the right answer. You're doing a good job. Incorrect (anticipated for $24, $2400, $24000): No, that's the wrong answer. Always check your decimal places carefully. Incorrect Unanticipated	

Host VO: Once you know your weekly pay, you can figure your annual or yearly pay. Just multiply your weekly pay by the number of weeks in a year -- 52. In our example, that's $280 times 52. That's $14,560.	Text screen. Number bar question. 280 Dollars per week x 52 Weeks per year --------------------- $14,560 Dollars per year
Host VO: Suppose you make $240.00 a week. How much would you earn in one year?	Text screen. Number bar question: $240 Weekly rate x 52 Weeks per year ----- Annual pay
Host VO: Feedback (12,480): Yes, that's the correct answer. Congratulations! Incorrect (anticipated, for $124.80, $1248.00, $124,800.00): No, your answer is incorrect. Always check your decimal places carefully. Incorrect Unanticipated	

Of course, there are other things besides your hourly rate and number of work hours that affect your pay. Some of these will add money to your paycheck, and some will take money away. Let's look at the things that add money to your paycheck first. These things include getting a raise or a bonus, and working overtime.	Text screen Things influencing your pay are: o raise o bonus o overtime o taxes o insurance o other deductions you allow
A raise is a permanent increase in your hourly wage. If you were making $5 an hour, and got a 45 cent raise, you'd be making $5.45 ~~per hour.~~ for every hour you work.	Text screen, beside raise, above: permanent
A bonus is a one-time sum of money for some really outstanding work you've done. You might get a bonus for making an extra effort when your boss needs you to.	Text screen, beside bonus, above: single lump sum of money

Host VO: The last way to make more money than your regular pay is by working overtime. There is a law in this country that workers who are paid by the hour must be paid at a higher rate if they work more than 40 hours in a week. Usually, this rate is "time-and-a-half", which means you are paid your hourly rate plus half your hourly rate for each hour of overtime you work. ~~overtime~~.	Text, beside overtime, above: "time-and-a-half" Hourly rate (time) + half hourly rate (and a half)
Let's do an example. Say **you're making** $7.00 an **hour. To find your overtime rate, you add** 7 **dollars and half of** 7 **dollars, or** $3.50 **and get a new hourly rate. At** 7 **dollars an hour, your overtime rate would be** $10.50 **per hour!** Overtime can really affect your pay. Not only are you working more hours, you're being paid more too!	Text screen. Overtime=hourly rate plus 1/2 hourly rate 7.00 / hour 3.50 / hour ----- 10.50 / hour
Now you do one.	

What is the overtime rate, at time-and-a-half, for a worker making $6.00 per hour? Feedback ($9.00/hr.): Yes, that's the correct answer. Congratulations! Incorrect (anticipated, for $6.50): No. Your answer is incorrect. You should have added the base pay of $6.00 per hour plus half the base pay to find your overtime rate. Incorrect (unanticipated): No. Your answer is incorrect. Keep trying.	Text screen. Number bar question.
If the overtime rate was double-time, your overtime rate would be your hourly rate ~~per hour~~ plus your hourly rate ~~per hour~~ again. So if you were making $7.00 per hour, you'd add $7.00 per hour to that base rate for a total of $14.00 per hour. You can see why some people ask for overtime.	Text screen. "Double time = 7.00 / hour 7.00 / hour ----------- 14.00 / hour

What is the overtime rate, at double-time, for a worker making $6.00 per hour?	Text screen. Number bar question.
Feedback: Yes, you got it right. Good job! Incorrect (unanticipated): No, you got it wrong. Good luck next time.	Anticipated
Bonuses work differently. Bonuses are often based on a percent of your earnings. ~~To figure out how much~~ Figuring a 10% bonus is just like figuring 10% of anything else -- you just move the decimal point one place to the left.	
For example, suppose your base pay for one day was $56.00, and your boss gave you a 10 percent bonus. You move the decimal one place to the left and you get the amount of $5.600. ~~But~~ Since cents only go to two decimal places, you just drop the extra zero ~~[pronounced oh]~~ at the end. So the amount is	Text screen. Plots 56.00, decimal moves, third zero erases.

$5.60.

Suppose you worked very hard for a whole week, and your boss rewarded you with a 10% bonus on your weekly pay. If your base pay is $240.00, how much is the 10% bonus?

Text screen. Number bar question.

Feedback ($24.00): Yes, that's the right answer. You're doing a good job. Incorrect ($2.40, $240.00, $2,400.00): No, that's the wrong answer. Always check how far you move the decimal. Incorrect (unanticipated): No, that's incorrect. Keep trying.

Bonuses are usually given in round numbers, like 10 percent or 15 percent. Once you know how to figure 10 percent, it's pretty easy to figure other commonly used percents.

Suppose your boss said you'll get a five percent bonus on $280.00. A ten percent bonus would be $28.00, ~~right?~~ Since five is half of 10, five percent is half of 10 percent. So, the five percent bonus is half of $28.00, or $14.00.	
What is a 5 percent bonus on $48.00?	Text screen. Number bar.
Feedback ($2.40): Yes, your answer is correct. Keep up the good work. Incorrect (anticipated): No, your answer is incorrect. Remember 5 percent is half of 10 percent. Incorrect (unanticipated): No, your answer is incorrect. Keep trying.	
Now that you know how to find 5 percent and 10 percent, it's easy to find other percents. ~~like 15 percent or 20 percent.~~ To find 15 percent of $56.00 just add the 10 percent, that's $5.60 to the 5 percent, that's $2.80.	Text screen.

And that's $8.40 total.	
What's 20 **percent of** **$56.00?**	**Text screen.**
Feedback (11.20): Yes, that is the right answer. Keep up the good work. Incorrect (anticipated): No, your answer is incorrect. Remember 20 **percent is 10 percent** **plus** **10 percent. Incorrect (unanticipated):** No, your **answer is** incorrect. **Keep trying.**	
Host VO: To find out how much you make, you add together **all** **the different things that** go **into your pay. This total is called** **gross** **pay.**	

Here's how you figure out your gross pay for the week. Suppose your rate is $7.00 an hour, and you worked 45 hours. So, for the first 40 hours, your rate was $7.00/hour -- making $280 for the week. The other 5 hours, at time-and-a-half, your rate was (7.00 plus 3.50). That's $10.50 an hour. Ten fifty times five is $52.50. And 280 + 52.50 is $332.50 gross.	Graphics/text screen. As the numbers are being spoken, the amounts plot on the screen.
Most workers are paid by check. There are two parts to most paychecks -- the check you deposit in the bank and the paystub that is a record of your pay. This is an example of what paystubs look like. There are spaces for the different kinds of pay workers receive.	
Where is the regular base pay recorded on this paystub?	Graphic screen. Touch the place on the screen. ($280.00)

NARRATOR VO: Touch the paystub in the correct place. When you're done, touch ENTER.

Host VO: Feedback: Yes, you got it right. Good job.
Incorrect (anticipated): No, that's the wrong answer. Base pay is sometimes called regular pay.
Incorrect (unanticipated): No, that's incorrect. Keep trying.

Where is overtime pay recorded on this paystub?

Graphic screen. Touch the place on the screen. ($52.50)

Feedback: Yes, that's the right answer. You're doing a good job.
Incorrect (anticipated): No, that's incorrect. All information about money earned in the pay period is usually recorded in the same area.
Incorrect (unanticipated): No,

that's the wrong answer. Try again.	
Where is the gross pay recorded on this paystub?	Graphic screen. Touch the place on the screen. ($332.50)
Feedback: Yes, you got it right. Good job! Incorrect (anticipated): No, you got it wrong. All information about money earned in the pay period is usually recorded in the same area. Incorrect (unanticipated): No, you got it wrong. Good luck next time.	
Host VO: Now, let's look at all the things that come out of your paycheck -- deductions. It's important for you to understand them because they affect how much of your pay you actually receive.	Graphic of paycheck on top of horizontal split screen. Touch the place on the screen.

There are two different kinds of deductions -- required and voluntary. Required deductions are deductions employers have to make, by law. There are three required deductions, Federal taxes, State taxes and Social Security taxes.	Graphic screen. Required deductions are boxed in, maybe, purple. Touch the place on the screen.
Taxes are based on how much you make, and how much the government needs. Federal taxes are the biggest. Among other things, they are used for running the federal government, paying for the armed forces, providing help to foreign governments, and paying for scientific research and inter-state highways.	Graphic of astronaut or space capsule from outer space. Graphic of paycheck has just federal tax boxed and standing out.
Where is the Federal income tax recorded on this paystub?	Graphic screen. Touch the place on the screen. $31.35 is income tax.
Feedback: Yes, that's the correct answer. Congratulations! Incorrect (anticipated): All information about taxes for the pay period is usually recorded in	

the same area. Incorrect (unanticipated): No, that's incorrect. Keep trying.	
State taxes pay for the State government and the services it provides, like State police, public clinics, and employment and training programs.	Graphic of check, with just State tax deduction highlighted on paycheck.
Where is the State income tax recorded on this paystub?	Graphic screen. Touch the place on the screen. ($8.55)
Feedback: Yes, your answer is correct. Keep up the good work. Incorrect (anticipated): All information about taxes for the pay period is usually recorded in the same area. Incorrect (unanticipated): No, your answer is incorrect. Keep trying.	
Social Security is different than the other two taxes. This is money that the government puts away for your retirement years, or sooner if you	Graphic of handicapped worker and just FICA highlighted on paycheck.

Social Security is called F.I.C.A
I think of it as Funds I'll care About
when I get older.

Funds I'll care About

become unable to work for health reasons.

Where is the Social Security deduction recorded on this paystub?

Graphic screen. Touch the place on the screen. ($19.10)

Feedback: Yes, that's the right answer. You're doing a good job.
Incorrect (anticipated): All information about taxes for the pay period is usually recorded in the same area.
Incorrect (unanticipated): No, that's the wrong answer. Try again.

Those taxes are all the required deductions. Then there are voluntary deductions. These include medical insurance, life insurance, union dues, donations to charities, and money for the office coffee fund. These deductions are voluntary, because you have to "volunteer" to have your employer take the money out. They can't do it without your permission.

Graphic screen. Box/highlight all the voluntary deductions. (health ins is $5, United Way is $2.00)

What's left from your gross pay after all deductions is called your net pay. Another word for net pay is take-home pay. I remember "net" by thinking of what I catch in my net (most of the fish). In your net pay you get most of the money. To find net pay, you just add up all the deductions, both the voluntary ones and the taxes. Then subtract the total from the gross pay.

What is the total for all the deductions recorded on this paystub?

Graphic screen. Number bar question. ($66.00)

Feedback: Yes, that's the correct answer. Congratulations!
Incorrect (unanticipated): No, that's incorrect. Keep trying.

Graphic screen. Number bar question. ($219.00)

Feedback: Yes, your answer is correct. Keep up the good work.
Incorrect (unanticipated): No, your answer is incorrect. Keep trying.

What should the net pay be on this pay~~check~~stub?

Text/graphics screen.
Number bar question.

Test
Host VO

1) Suppose you worked 40 hours a week, and made $4.00 per hour. What is your base pay for one week's work?	Text screen. Number bar question.
2) What do you estimate your gross pay will be for one year, if you receive no bonuses, raises or overtime, and make $4.00 per hour?	Text screen. Number bar question.
3) If you make $4.00 per hour, what would your time-and-a-half overtime rate be?	Text screen. Number bar question.
4) How much would you earn in overtime pay, if you work 7 hours overtime and your overtime rate is $6.00 an hour?	Text screen, number bar question.
5) What would your gross pay be, if you eaned $42.00 an hour in overtime pay and $160.00 in base pay?	Text screen, number bar question.

6) Suppose your boss gave you a 10% bonus on your week's wages of $202.00. How much would you earn in bonus pay?	
7) Where is the base pay recorded on this paystub?	Graphic/text of paycheck. Touch the place on the check question.
8) Where is the Federal income tax recorded on this paystub?	Graphic/text of paycheck. Touch the place on the check question.
9) Where is the Social Security tax recorded on this paystub?	Graphic/text of paycheck. Touch the place on the check question.
10) Where is the take home pay recorded on this paystub?	Graphic/text of paycheck. Touch the place on the check question.

April 12, 1989 - ER

FINAL

MONEY FORMS

AUDIO	SCREEN	PROPS, ETC.
HOST: You know there are lots of forms that we have to deal with here. Most of them have something to do with money. Order forms, deposit slips, account statements, and checks are some of the ones we use most. They all have different purposes and look different. But they are alike because they all have to do with handling money and they are used for a specific purpose that helps the business.	MOTION: Host at his desk with a variety of real forms around him. Moves his hand in the area of each one as he mentions it.	**PROPS: Order forms, deposit slips, account statements, and open checkbook. Most can be real forms, but should include the order form, deposit slip, and account statement from last year in the pile.**
VO: Because these forms have been designed for some particular purpose, they have space for just the information needed. So, the FIRST RULE when you're completing money forms is to fill in all of the spaces on the form. Don't leave anything blank just because you don't know what goes in a space. Ask for help if you need it. The SECOND RULE is that these forms are designed to be easy to complete. They are set up so that you complete them in an order that makes sense. That means that you start at the top and work down toward the bottom of the form.	GRAPHIC: Graphic of a simple form. Two rules plot as mentioned: Fill in all information; Start at the top and work down. Characters plot in all spaces as mentioned. Arrow pointing to top left plots at appropriate time.	PROPS: None
HOST VO: If you keep these two rules in mind, read the forms carefully, and ask your supervisor for help when you're stuck -- you will be able to complete the money forms you work with. Let's take a careful look now at this order form that I need to complete.	GRAPHICS: rules plot, then a simple order form	PROPS: None

AUDIO	SCREEN	PROPS, ETC.
VO: Order forms are used to let businesses know what you want to buy from them. Sometimes orders can be placed over the phone or even in person -- but often, I have to complete an order form and send it in the mail. Luckily, most order forms are pretty much the same and look pretty much like this one. So -- once you know how to fill out one, it's fairly easy to fill out others. The first step in completing an order form is deciding what to order and -- of course -- how many to order. Here, I'm ordering a few hard to find hardware items to put the finishing touches on our remodelling. First, I want to order 5 more coat hooks for the coatroom. Once you know the number you want, you enter that number in the column that's usually marked with the words "Item Quantity" or just "Quantity." Where on the order form would you write the number of coat hooks being ordered? **NARRATOR**: Touch the order form at the correct place.	GRAPHIC OF ORDER FORM similar to one in Assessment occupying full screen. Touch the object once input.	PROPS: None

AUDIO	SCREEN	PROPS, ETC.
Feedback: Correct: Yes, your answer is correct. Keep up the good work. Anticipated Incorrect: For high in another column, No, that's incorrect. Look at the words at the top of each column to make your decision. For low in the correct column, No that's incorrect. Remember that you begin at the top of your form. Unanticipated Incorrect: No, that's the wrong answer. Try again.		
VO: The name of the item goes in the column that is usually labelled "item description" or just "description." Where on the order form would you write the word coat hooks?	GRAPHIC OF THE ORDER FORM. Quantity has plotted in appropriate space. Touch the Object Once input.	PROPS: None
Feedback: Correct: Yes, that's the right answer. You're doing a good job. Anticipated Incorrect: For high in another column, No, that's incorrect. Look at the words at the top of each column to make your decision. For low in the correct column, No that's incorrect. Remember that you begin at the top of your form. Unanticipated Incorrect: No, that's the wrong answer. Try again.		

AUDIO	SCREEN	PROPS, ETC.
VO: Other information may be required such as a catalog number, a size, or a color. We don't need this information on this form, but if we did, there would be a column for it. It's very important to complete all of the information on the form for each thing you're ordering. A lot of this information is given in the catalog or other materials you use to place the order. The rest of it can be figured from this information. The weight and price are usually given in the catalog. So, at the same time you write down the name of the item and the number you want, you can write down the price for one and the weight of one in the correct columns. Often the headings of these columns have the word "unit" in them. Here the columns are called "unit weight" and "unit price".	GRAPHIC OF ORDER FORM. Maybe a facsimile of a catalog page has overlaid lower left part of the order form. Weight (2 pounds) and price ($7.00) plot at the appropriate time.	PROPS: None
VO: Some order forms may not ask for weight because they figure the shipping charges in a different way. For instance on this form, shipping charges are based on the total dollar amount of the order.	GRAPHIC OF ANOTHER VERY SIMPLE ORDER FORM COMES IN AND OVERLAYS MOST OF THE OTHER ONE. Box where shipping charges are listed is highlighted, probably in yellow as on paystub.	PROPS: None

AUDIO	SCREEN	PROPS, ETC.
VO: And, once in a while, shipping is actually free. So, there may be no space for weight. However, if the form asks for weight -- like this one does -- you can be sure that you will need it somewhere along the way. When weight is required, there will also be a column for you to write the total weight for each item. This column is usually labelled "Total Item Weight." Where on the order form would you write the total weight for the coat hooks? Feedback: Correct: Yes, you got it right. Good job. Anticipated Incorrect: For high in another column, No, that's incorrect. Look at the words at the top of each column to make your decision. For low in the correct column, No that's incorrect. Remember that you begin at the top of your form. Unanticipated Incorrect: No, that's the wrong answer. Try again.	GRAPHIC OF FIRST ORDER FORM. Touch the object once input.	PROPS: None
VO: To find this "Total Item Weight", you just multiply the weight for one from the weight column by the number you've ordered. Here, I want 5 coat hooks and each one weighs 2 pounds. What is the total weight for the coat hooks?	GRAPHIC OF MAIN ORDER FORM. Number bar input.	PROPS: None

AUDIO	SCREEN	PROPS, ETC.
Feedback: Correct: Yes, that's the right answer. You're doing a good job. Anticipated incorrect: No, that's the wrong answer. You need to multiply to get the correct answer. Unanticipated incorrect: No, that's the wrong answer. Try again.		
VO: Of course, all order forms require that the price of each thing being ordered is on the form. The amount for one is usually written in a column which may be labelled with the words "unit price", "price each", or just "price." Just as for weight, there is also another column for you to write the total price for each thing you're ordering. The column for this is usually labelled "total item price", but may also be called just "total price." Where on the order form would you write the total price for the coat hooks?	GRAPHIC OF FIRST ORDER FORM. Touch the object once input. Everything except total price for the coat hooks is filled in at this point.	PROPS: None
Feedback: Correct: Yes, you got it right. Good job. Anticipated Incorrect: For high in another column, No, that's incorrect. Look at the words at the top of each column to make your decision. For low in the correct column, No that's incorrect. Remember that you begin at the top of your form. Unanticipated Incorrect: No, that's the wrong answer. Try again.		

AUDIO	SCREEN	PROPS, ETC.
VO: Finding the total price for the coat hooks works just the same as finding the total weight for them. Just multiply the price of one coathook by the number you want. Here I want 5 coat hooks and each one costs $7.00. What is the total price for the coat hooks?	GRAPHIC OF MAIN ORDER FORM. Number bar input.	PROPS: None
VO: If you want to order more than one thing, you just repeat what we did above for each thing you're ordering -- like this.	GRAPHIC OF MAIN ORDER FORM. 2 more lines of information plot. Now form reads as follows (see below):	PROPS: None

5 coat hooks	2 pounds ea	10 pounds	$ 7.00 ea	$35.00;
2 light fixtures	8 pounds ea	16 pounds	$39.50 ea	$79.00;
3 plate racks	6 pounds ea	18 pounds	$20.00 ea	$60.00.

This means that the totals for these columns which are not on this screen are:

44 pounds $174.00

AUDIO	SCREEN	PROPS, ETC.
VO: Once you've written down all the information for each thing you're ordering, you look down toward the lower right hand corner of the order form to find out what you have to do next. Usually, there are several things that you need to fill in down in this section of the form. The most important thing to remember is to start at the top of the block and fill in each figure before trying to go on to the one below it. Usually, the first figure asked for in this block is the "subtotal" or "merchandise total". To find the number to enter in this box, you just add up the "total item prices". These are usually right above the box for entering the subtotal, which makes it easier to do the addition. What is the total price of all the merchandise? **Narrator**: Touch the numbers on the bar to answer. When you're done, touch enter. Feedback: Correct: Yes, you got it right. Good job! Incorrect Anticipated: For 62, No, you got it wrong. The total item prices are directly above the box for the subtotal or merchandise total. Incorrect Unanticipated: No, that's incorrect. Keep trying.	GRAPHIC OF MAIN ORDER FORM. Total block outlined in yellow as mentioned. Arrow points at subtotal box as mentioned. Number bar input.	PROPS: None

AUDIO	SCREEN	PROPS, ETC.
VO: Once you have a subtotal, you look at the box right below it. Here it's the box for the sales tax. Sales tax rates vary from place to place and -- if you're dealing with sales tax -- you'll learn the tax rate for your area. It's not often that you actually have to calculate sales tax. Usually, you will be working with a cash register which computes sales tax or you will have a tax chart like this one. Although there are a lot of numbers on a tax chart reading one isn't too hard -- once you know how. You locate the amount of your merchandise total in one of the columns -- and then look at the number right next to it. That's the sales tax. Of course, not every amount of money appears on the chart. Usually there are two larger dollar amounts separated by a dash and then right next to them a smaller amount of money. This smaller amount is the tax for any amount of money between the lower and higher numbers. So here, Three dollars and seventy cents ($3.70) is the tax for any amount in between seventy-three dollars and eighty one cents and seventy-four dollars. Most tax charts only go up to one hundred dollars, but you can still use them to find tax on larger amounts. Our total for merchandise in the subtotal box is one hundred and seventy four dollars ($174.00). We already know that the tax on seventy four dollars is three dollars and seventy cents. Now all we have to do is locate the tax for one hundred dollars. That's five dollars even. Then we just add the two tax amounts together to get our total tax. What is the total sales tax for the order?	GRAPHIC OF MAIN ORDER FORM. Tax chart overlays most of upper part of main order form as it is mentioned. Arrows and/or yellow boxes plot at appropriate times. Number bar input.	PROPS: None

AUDIO	SCREEN	PROPS, ETC.
Feedback: Correct: Yes, that's the right answer. You're doing a good job. Incorrect Anticipated: For $5.00 or $3.70, No, that's incorrect. You should have added the sales tax for one hundred dollars and the sales tax for seventy-four dollars together. Incorrect Unanticipated: No, your answer is incorrect. Keep trying.		
VO: When we look below the sales tax space to see what we need to do next, we see a box for shipping charges. Up above, we had to fill in the weight for one of each item and a total item weight for each thing we ordered. Because of that, we can be sure that the shipping charges are based on weight. Since we've already figured out the total item weights, all we have to do now to get the total weight for the order is to add them up. What is the total weight for the order?	GRAPHIC OF MAIN ORDER FORM. Tax chart has disappeared. Tax is filled in. Arrows or yellow boxes plot at appropriate times. Number bar input.	PROPS: None
Feedback: Correct: Yes, your answer is correct. Keep up the good work. Incorrect Anticipated: For 10, 16, or 18, No, that's incorrect. You should have added the three weights in the total item weight column. Incorrect Unanticipated: No, your answer is incorrect. Keep trying.		

AUDIO	SCREEN	PROPS, ETC.
VO: As you can see, there's a special place right at the bottom of the Total Item Weight column for this total order weight. This weight can't go in the total block because that block is only for money values. Once we know the total weight of the order, we need to look at a shipping chart to figure out the shipping charges. A shipping chart is usually included with the packet of materials the company sends out to its customers. Shipping charts can be a little confusing because shipping charges are based on two things -- the weight of the order and how far away you are from the shipping location. So, you may need to ask someone at work to explain more about the charts you need to use. To read a chart like this one, you need to know what zone you're in. That depends on how far you are from the shipping location. You will probably need to ask your supervisor for the Zone. Here, I know I'm in Zone 1 for this company. So, I just look down the Zone 1 column until I come to the correct weight in the weight column right next to it. Like on the tax chart a weight range is given. Since forty-four pounds is between forty-two and fifty-three pounds, I look at the amount right next to it in the Zone 1 column. What are the total shipping charges for the order?	GRAPHIC OF MAIN ORDER FORM. Shipping chart overlays top of main order form at appropriate time. Total Order Weight is filled in. Arrows or yellow boxes plot at appropriate times on shipping chart. Number bar input.	PROPS: None

AUDIO	SCREEN	PROPS, ETC.
Feedback: Correct: Yes, your answer is correct. Keep up the good work. Incorrect Anticipated: For dollar amounts in the immediate vicinity on the shipping chart, No, that's incorrect. You should have looked in the Zone 1 column right next to the weight range for 44 pounds. Incorrect Unanticipated: No, your answer is incorrect. Keep trying.		
VO: There's only one thing left to do now -- that is find the total or grand total, as it's sometimes called. This is the total amount that you will be paying for your order -- including tax and shipping charges. To find it, you just add everything in the total block together. What is the grand total for this order?	GRAPHIC OF MAIN ORDER FORM. Shipping chart has disappeared. Shipping charges have been entered in appropriate box. Arrows or yellow boxes plot to define grand total box at appropriate time. Number bar input.	PROPS: None
Feedback: Correct: Yes, that's the correct answer. Congratulations. Incorrect Anticipated: For any individual amount in the total block, No, that's incorrect. To find a grand total, you need to add together the subtotal, sales tax, and shipping charges. Incorrect Unanticipated: No, your answer is incorrect. Keep trying.		

AUDIO	SCREEN	PROPS, ETC.
HOST: I think that order forms are one of the hardest kinds of forms to fill out. Fortunately, some of the others we use aren't quite as complicated. Like this deposit slip. A deposit slip is just a form to record the amount of money that you're depositing in a bank account.	MOTION: Host still at his desk. Picks deposit slip out of the pile as he mentions it.	PROPS: Deposit slip; Other form and desk props from before
VO: As you can see, there aren't nearly as many spaces on a deposit slip as there are on an order form. Usually the account number is preprinted on the deposit slip. So, you don't have to worry about writing that in. In fact, there are only 5 things that you need to enter on most deposit slips. Starting at the top again, the first thing is the date you're depositing the money in the bank. Second, there is a space for currency. Currency is just another word for bills. So, in the space right next to the word currency, you write the total amount in bills that you're depositing. I have forty-eight dollars ($48.00) in bills to deposit. Where should you write the total of all the bills being deposited? Feedback: Correct: Yes, that's the right answer. You're doing a good job. Incorrect Anticipated: For touch in closeby area, No, that's incorrect. Another word for bills is currency. Incorrect Unanticipated: No, your answer is incorrect. Keep trying.	GRAPHIC OF DEPOSIT SLIP just like on assessment disk. Date is filled in as mentioned. Touch the object once input.	PROPS: None

AUDIO	SCREEN	PROPS, ETC.
VO: Third - next to the space labelled "coin" you write the total of all the coins you're depositing. I have sixty-three dollars and twenty-two cents in coin to deposit. Where should you write the total of all the coins being deposited?	GRAPHIC OF DEPOSIT SLIP just like on assessment disk. Date and currency amount $48.00 are filled in. Touch the object once input.	PROPS: None
Feedback: Correct: Yes, you got it right. Good job. Incorrect Anticipated: For touch in closeby area, No, that's incorrect. You should have touched in the area right next to the word coin. Incorrect Unanticipated: No, your answer is incorrect. Keep trying.		
VO: Fourth, look down the deposit slip and you see the word checks. But this time, right after it there are several unlabelled spaces. That's so you can list each of the checks that you're depositing separately. You list the amount of each check in the spaces right below the spaces for amounts of coin and currency. In the spaces to the left you write some kind of identification for the check -- like a bank number, a check number, or the name of the company or person who wrote the check. So, for this check from Mr. Martinez, I write Martinez and then $30.00. Where should you record the amount of another check for $15.00.	GRAPHIC OF DEPOSIT SLIP just like on assessment disk. Date, currency, and coin filled in at start. Martinez check for $30.00 is filled in. Touch the object once input.	PROPS: None

AUDIO	SCREEN	PROPS, ETC.
Feedback: Correct: Yes, you got it right. Good job. Incorrect Anticipated: For touch in correct column but too low, No, that's incorrect. Always work from top to bottom. Don't skip spaces. For touch in identifier column, No, that's incorrect. That's the column where you write something to describe the check -- like the name of the company or person it came from. Incorrect Unanticipated: No, your answer is incorrect. Keep trying.		
VO: Where should you record the name of the person who wrote this second check?	GRAPHIC OF DEPOSIT SLIP just like on assessment disk. Now amount from second check is filled in. Number bar input.	PROPS: None
Feedback: Correct: Yes, that's the right answer. You're doing a good job. Incorrect Anticipated: For touch in correct column but too low, No, that's incorrect. Always work from top to bottom. Don't skip spaces. For touch in amount column, No, that's incorrect. That's the column where you write the amount of the check. Incorrect Unanticipated: No, your answer is incorrect. Keep trying.		

AUDIO	SCREEN	PROPS, ETC.
VO: The only thing left to do now is to add up all of the things you're depositing and write the total in the total box. What is the total amount being deposited?	GRAPHIC OF DEPOSIT SLIP just like on assessment disk. Everything filled in except total. Number bar input.	PROPS: None
Feedback: Correct: Yes, that's the correct answer. Congratulations. Unanticipated incorrect. No, you got it wrong. Good luck next time.		

AUDIO	SCREEN	PROPS, ETC.
VO: Another form we use quite a bit here at the restaurant is the account statement. Many of our regular customers have a running account with us. That means they don't pay every time they come in. Instead, we keep a separate record for each customer to keep track of how much they spend and how much they pay. About once a month, most customers send us money. Here's Mr. Lee's account statement. Let's look at it carefully. The first entry has 4 columns filled in: The date column where we write the date each time he comes in to eat; The purchase column where we write the meal that he purchased; The purchase amount column where we put the amount charged for each meal purchased; And finally, there's the balance due column. We figure this balance due every time a customer makes a purchase or a payment. It's the amount that they owe on that date. Of course, it changes depending on the purchases and payments the customer makes. So, the last entry at the bottom of the balance due column is the amount that the customer owes right now. To figure the balance due when the customer makes a purchase, we just add the amount of the purchase to the balance due on the line above. For instance, on April 15th, Mr. Martinez purchased lunch for $17.00. To figure his balance due on that day I added the $17.00 to the balance due on the line right above -- $20.00. So, his balance due then was $37.00. What was the balance due on May 16th?	GRAPHIC OF STATEMENT with entries through May 16th excluding the balance due on May 16th. Things pointed out by arrows and/or yellow boxes as mentioned. Line drawn from purchase to previous balance due with + sign next to it. Number bar entry.	PROPS: None

AUDIO	SCREEN	PROPS, ETC.
Feedback: Correct: Yes, that's the correct answer. Congratulations. Incorrect Anticipated: For $39, $41, $20, No, you got it wrong. To find the current balance after a purchase, you add the most recent purchase to the balance due from the line above. Unanticipated incorrect: No, you got it wrong. Good luck next time.		
VO: To figure the balance due when the customer makes a payment, we just subtract the amount of the payment from the balance due on the line above. For instance on April 20th, Mr. Martinez paid $35.00. So, to figure his balance due on that day I subtracted $35.00 from the balance due on the line right above -- $37.00. So, his balance due then was just $2.00. What was his balance due on May 19th?	GRAPHIC OF STATEMENT with entries through May 19th excluding the balance due on May 19th. Things pointed out by arrows and/or yellow boxes as mentioned. Line drawn from payment to previous balance due with - sign next to it. Number bar entry.	PROPS: None
Feedback: Correct: Yes, that's the correct answer. Congratulations. Incorrect Anticipated: For $61, $50, No, that's the wrong answer. To find the current balance, you subtract the most recent purchase from the balance due on the line above. Unanticipated incorrect. No, that's incorrect. Keep trying.		

Audio	Screen	Props
1) Suppose you wanted to order 15 cabinet knobs. Where on the order form would you begin writing?	GRAPHIC SCREEN OF ORDER FORM very similar to main order form from instructional section and assessment. Touch the object once.	
2) What is the total item price for the cabinet knobs?	GRAPHIC SCREEN OF ORDER FORM from above. Everything except the total item price is entered for the cabinet knobs. Number bar input.	
3) What is the total cost for all the items being ordered?	GRAPHIC SCREEN OF ORDER FORM from above. 2 more items have been completely plotted, including total item price. Number bar input.	
4) What is the sales tax on this order?	GRAPHIC SCREEN OF ORDER FORM from above. Subtotal has plotted. Tax chart overlays top half of order form. Number bar input.	

5) What is the total weight of the order?	GRAPHIC SCREEN OF ORDER FORM. Sales tax has plotted.
6) If you are in Zone 1, what are the shipping charges for this order?	GRAPHIC SCREEN OF ORDER FORM. Total weight has plotted. Shipping chart overlays part of order form.
7) What is the grand total price for the order?	GRAPHIC SCREEN OF ORDER FORM. Shipping charges have plotted.
8) Suppose you were making a bank deposit for your employer. Where on this deposit slip would you write the total of all the bills being deposited?	GRAPHIC SCREEN OF DEPOSIT SLIP similar to one on assessment disk.
9) Where on this deposit slip would you record the amount of the first check?	GRAPHIC SCREEN OF DEPOSIT SLIP. Currency and change amounts are entered.
10) What is the total amount being deposited?	GRAPHIC SCREEN OF DEPOSIT SLIP. Currency, change and check amounts are entered.

11) Mr. Miller had dinner for 6 on April 14th. What was his balance due after the dinner?	GRAPHIC SCREEN OF STATEMENT OF ACCOUNT like one in assessment. A number of entries have been made as on instructional one. On the line for April 14th "dinner for 6" and the amount of purchase are recorded, but not balance due.
12) Mr. Miller made a payment of $20.00 on April 18th. What was the balance due after he made the payment?	GRAPHIC SCREEN OF STATEMENT OF ACCOUNT with balance due from above and date and payment amount for April 18th entered.

APPENDIX E
Pilot Test Observation and Rating Sheet

Working with Math

A Math Skills Assessment Program

Observation and Rating Sheet for Pilot Test

DIRECTIONS: Observe and interview an individual student who is using the IVD/computer software program, *Working with Math* . Follow instructions given for each section.

Date ________

Student ID ________

Observer ________

1. Sex M ☐ F ☐

2. Age ________ [or range: 20-24 ☐ 25-29 ☐ 30-34 ☐ 35-39 ☐ 40-44 ☐ 45-49 ☐ 50-54 ☐

3. Are you working? N ☐ Y ☐ If yes: Where or what type of work? ________

How long? ________

4. Background information from RCF ________

____

____

After testing session is completed, engage the student in a brief conversation that allows you to rate the following statements by marking a √ or X in the applicable box:

	Usually	Sometimes	Rarely
5. Student reports enjoying using IVD/computer software.			
6. Student reports enjoying using touch screen interface.			
7. Student reports wants to use this program again.			
8. Student reports IVD/computer testing is better way to be tested.			

Based on your observation and notes, rate the following statements by marking a √ or X in the applicable box:

	Usually	Sometimes	Rarely
9. Student able to use program by him/herself for content.			
10. Student able to use program by him/herself for interaction.			
11. Student attends to task.			
12. Student completes each test in one sitting.			

Mark a √ or X in the applicable box to give a general overall rating for each of the following:

	Good	Acceptable	Poor
13. Testing atmosphere conducive to testing			
14. Suitability of the IVD/computer materials [5,9,10]			
15. Ease of use of the IVD/computer materials [10,12]			
16. Student attitude during testing session [5,6,7,8,11]			

Use this side to record observations regarding: *behaviors, interactions with the system, interruptions, disruptions, student comments, nature of requests for assistance, etc.*

Number of requests for assistance ________

Brief descriptions of requests:

	Start Time	Stop Time	Length
LM			
GM			
CM			
WM			
PM			
TM			
MV			
ME			
MF			

END

U.S. Dept. of Education

Office of Education
Research and
Improvement (OERI)

ERIC

Date Filmed

March 29, 1991